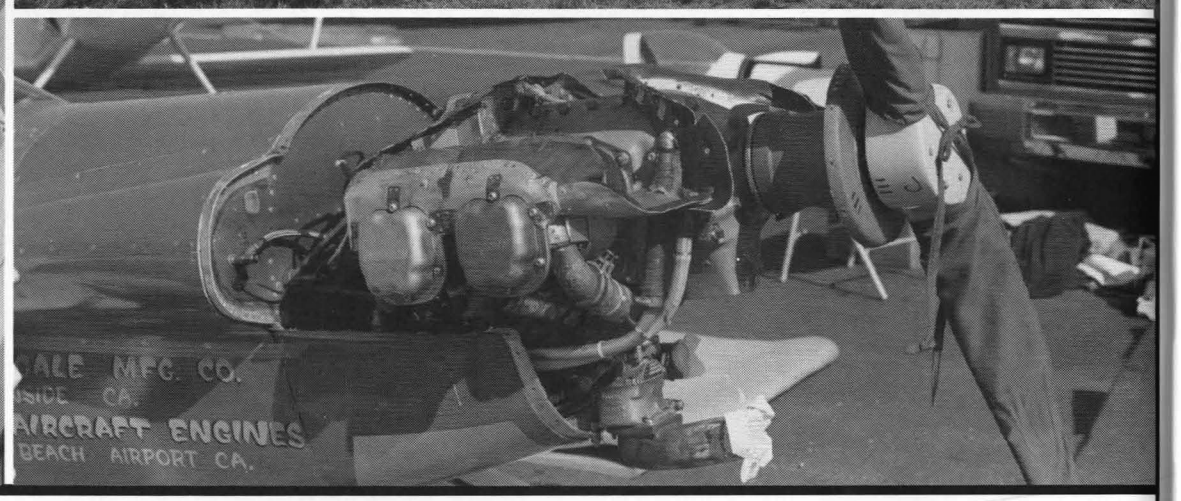
Sportsman Pilot™

Fall 1988

Sportsman Pilot

VOLUME 8 FALL 1988 NUMBER 3



ALL ARTICLES AND PICTURES BY JACK COX UNLESS OTHERWISE CREDITED

Cover . . . Lyle Shelton's 1988 Reno winner, the Rare Bear

EDITOR/PUBLISHER J. B. "JACK" COX ADVERTISING MANAGER GOLDA COX

Sportsman Pilot (ISSN 0279-1749) is published quarterly by Sportsman Pilot, 1220 Huron Court, Oshkosh, WI 54901. Postmaster: Send address changes to P.O. Box 2768, Oshkosh, WI 54903-2768.
One year subscription rate for U.S. is $7.50; Canada, Mexico and overseas $8.50, payable in U.S. currency only.
Address subscriptions and correspondence to: Sportsman Pilot, P.O. Box 2768, Oshkosh, WI 54903-2768.
Second class postage paid at Oshkosh, WI 54901 and additional Post Offices.

MAG CHECK

It had to happen sometime, I suppose. Golda and I have had tremendous luck with the weather since we started publishing **Sportsman Pilot** in 1981. We've frozen our noses at both Watsonville and Reno and we've baked them at fly-ins from the Carolinas to California, but we had never been rained out until this year. Over the Labor Day weekend, we attended the Ole South Fly-In at Rome, GA and after doing just one interview, the heavens opened up and it **poured** for the next 24 hours! For us it was a total washout because we had to depart on Monday morning. Naturally, it was beautifully clear that day. Then, in mid-October our airliner descended into Phoenix in the midst of what was reported on TV that evening to have been the 4th heaviest rainstorm in the city's history. It was just as bad at nearby Casa Grande, so the first day of the Copperstate Fly-In (Friday) was also a washout. Fortunately, it cleared during the night and the rest of the weekend was beautiful. Hopefully, we can go another 8 years without a rainout.

Since this is our last issue before the Thanksgiving, Christmas and New Year's holidays, we wish all of you the merriest during each of them. It is our hope that our efforts here have been a bright spot in your year of 1988, and we look forward to providing more of the same in 1989.

KALEIDOSCOPE

GIFT SUBSCRIPTIONS

Looking for a special way to remember an aviation friend on a birthday, anniversary or other occasion . . . or, maybe, a unique way to say thanks for help on your homebuilding or antique restoration project? Give that person a subscription to **Sportsman Pilot** so they will remember you all year long. To personalize your gift subscription, send us your check, the name and complete address of the recipient and we will send out a nice card containing whatever message you want to convey. There's no extra cost for this service - and we will start your friend's subscription with whatever issue you request.

BOOK REVIEW - PLAYBOY OF THE AIR

Don't rush out trying to buy this one . . . I've been searching for a copy of **Playboy Of The Air,** the autobiography of Jim Mollison, both here and in Great Britain for years and I still don't have one. First published in England in 1937, the book apparently received little notice in the United States. I learned of its existence and had the opportunity to read it only through the good offices of my friend, Jan Christie. Jan is a retired SAS 747 captain who now lives near Ft. Atkinson, WI and like the rest of us, has been enamored with aviation for about as long as he can remember. During World War II, he was a fighter pilot in Great Britain, flying Hurricanes and Spitfires and living the adventures most of us can only read about . . . yet, what did he do in his idle hours? Read about airplanes and flying, of course! I don't know the circumstances surrounding the purchase of his copy of **Playboy Of The Air,** but on the overleaf in his handwriting is the following: "London, March 1942 - Jan Christie, 2nd. Lieut. R.N.A.F." He has kept and cherished the book all these many decades, and knowing of my interest in the European distance flyers of the '20s and '30s, was kind . . . and trusting . . . enough to allow me to read it a few years ago. I found the book to be so absolutely fascinating that I began searching everywhere for a copy of my own, but, so far, no luck. This summer Jan loaned me his copy once more so I could review it here . . . because as rare as the book appears to be, this is likely as close as most of you will ever get to the full story. I deeply appreciate his generosity, because the book is one I think all of you should know about.

First, a brief introduction to Jim Mollison for those of you who may not be familiar with the man. One of the international breed of "record breakers" inspired by Charles Lindbergh, the daring little Scotsman spent the 1930s making record flights to and from Australia, to and from South Africa and across both the North and South Atlantic. For brief periods he held the speed records for flights from Australia to England, England to Capetown . . . and was the first pilot to fly both the North and South Atlantic solo, east to west. Married briefly to the equally famous distance flyer, Amy Johnson, he shared several record attempts with her, including a flight to the U.S. in their D.H. Dragon, "Seafarer", and about half way in the MacRobertson England to Australia air race in their D.H. Comet, "Black Magic." World War II ended the great era of record flying and, afterwards, Mollison drifted into relative obscurity . . . and died in 1959.

First, I have to tell you that Jim Mollison was not . . . most definitely not cut from the same cloth as Charles Lindbergh. The Lone Eagle was a revered hero who went on to live an exemplary personal life. Jim Mollison made some daring flights and enjoyed a brief period of public acclaim, but his personal life was anything but exemplary. A self-confessed ne'er-do-well, heavy drinker and womanizer, he used aviation as a means to support a lifestyle that included little else. In his heyday in the early and mid 1930s, he averaged making a couple of record flights each year . . . the profits from which he gaily squandered in every den of iniquity he could find open in the wee hours of morning.

Why would I find a book about such a person fascinating? Well, certainly not out of any admiration for the man, Jim Mollison. It's what he had to say in this autobiography, about himself and about the world of the 1930s as he saw it, that is both fascinating **and valuable to an aviation historian.** Jim was quite remarkable in one respect. Whereas Lindbergh was by nature totally unprepared and unsuited to deal with the fame that was flung upon him by his flight to Paris, the rapacious Mollison greeted his with open arms. Aviation was quite literally his key to the kingdom and he used it eagerly and cynically to open every door he encountered. In the 1930s, European society was still quite stratified. It was still an era of manners, customs, tradition and convention, and the nobility still had the money and power to keep it that way. The only means by which a commoner gained access to the rarified world of the upper class was to become very wealthy or accomplish something very noteworthy. It was the latter, of course, that permitted the likes of Jim Mollison to hobnob with kings and queens, presidents, leading politicians and captains of industry. Completely unawed and well aware that his hour upon the stage would be brief, he took full advantage of newspapers and book publishers seeking to exploit him, considered it only fair to wear out his welcome at the castles and manors of the peerage who wanted to bask in the glow of his fleeting fame and eagerly accepted the favors proffered by hotels, restaurants . . . and, especially, drinking establishments and the women he met there. Jim was by nature a taker . . . and for a few glorious years, the world was giving.

Those of us fortunate enough to read his autobiography today profit by another of Mollison's shortcomings: he was apparently totally devoid of pride . . . at least pride in the conventional sense. His form of personal pride seems to have been in what he termed his "unorthodoxy." In **Playboy Of The Air,** he seems, in fact, to revel in recounting his past failures, dishonest acts, and, of course, the lurid details of his unceasing debauchery. Some of his pearls of self deprecation included the following:

"Never since my earliest days has work been allowed to come before pleasure with me.

"Yes, (I am) a night bird, a being living for the night and the dark. For a morning visitor to tear apart the dark curtains of my bedroom windows at 11 a.m. is for me torture. England's grey daylight spells work and offices, trams and trains, realities, punctualty, all of the things I dislike most. Life and enjoyment begin when the daylight fades and the bright lights are a-twinkle. Cocktail bars and the clubs from here to Honolulu are opening their doors to the faithful. Music, wine, moonlight through the palms, beautiful gowns, beautiful women inside them, whisperings, shaded lights. These are things only of the night.

"If the Devil asked me to trade my immortal soul for five years of up-to-the-minute living, I would clinch the bargain."

What's important for us today, however, is not all this tabloid twitter. It is this same brutal candor, this penchant of Mollison's for seeing things as they really were, regardless of how sordid, that is important. Aviation was the most exciting thing happening in the world in the 1920s and 1930s, and events such as Lindbergh's flight were like space travel today . . . without the prior experience of flight. Unfortunately, the hysteria created by every flight of significance became fodder for a sensational press. All too often, stories were written to sell newspapers and books rather than to tell what had really happened. All too often, the pilots themselves were made over into something they were not, again because the created rather than the real persona was believed to be a better "sell" at the newsstands and in the bookstores. At least in Mollison's case, the mask is stripped away . . . he has either the courage or the lack of discretion, depending on your point of view, to expose himself . . . warts and all. What is really more important, however, is the fact that he also exposes the sensation mongering press of the 1930s, both in Europe and in the U.S., showing their willingness to do whatever they thought necessary to sell their books, papers and radio time. The sad truth seems to be that, today, we know very little about the human side of the aviation heros we revere . . . and, perhaps, a lot more than we really care to know about that likable rogue, Jim Mollison.

What do we know about him? Well, in **Playboy Of The Air** he tells us that after being booted out of Glasgow Academy for unspecified infractions, his mother decided that flying should be his career . . . apparently in the belief that the stimulation of flying would be a more socially acceptable substitute for **his** choice, the unrelenting pursuit of attractive young women. His mother and grandfather pulled the necessary strings to get him accepted by the RAF, but in his

words, "I was not a good officer. To my friendly and informal nature the Service appeared an inexorable machine steadily grinding the soul out of us little men in blue tunics."

That inexorable machine was not very successful in grinding the fun loving soul out of our boy, Jim. In short order he had been court martialed for "smoting an officer between the eyes" during a drunken brawl and had crashed landed an Avro 504K on his second solo flight . . . after getting lost following the circling of a blond's house that was located well outside the training area in which he was supposed to be flying. By somehow obtaining a copy of his final examination and by getting a seat between two hard working fellow cadets, he managed to pass his "written" and was soon off flying a Bristol Fighter in India. Once back in England, he became the RAF's youngest instructor at 22, but, apparently, his extracurricular high jinks were still such that after 4 years and 9 months of service, he was transferred, in 1928, to the reserves and shortly afterwards, was cashiered out of the service altogether. His severance pay of 350 pounds was a fortune to Jim at the time, so he set off to explore the world . . . first, of course, on the French Riviera. After a couple of months of fun and frolic, his funds were sufficiently depleted to cause him to step off his known world into the unknown . . . by buying a one-way ticket to Australia. After a two and a half month stopover in Tahiti where the rent for his bungalow included a live-in native girl, he finally landed in Sydney with only pocket money left from his "fortune."

To stay solvent he subjected himself to a short stint as a "bathing beach attendant", but soon reverted to his old trade and became a flying instructor in Adelaide . . . and, of course, took on an Aussie mistress. After a year, however, he met the legendary Charles Kingsford-Smith, later Sir Charles, and went to work for him as an airline pilot. One of the aircraft he often flew was the famous "Southern Cross", the Fokker Tri Motor in which "Smithy" had earned his fame making the first flight from the U.S. mainland to Australia.

One day at the Brisbane airport Jim spotted a brand new D.H. Gipsy Moth sitting on the ramp . . . and with the owner not around, impetuously hopped in and took off for a pleasure flight around the city. When he landed, the large and infuriated owner was waiting with mayhem on his mind, but fortunately he turned out to be an old RAF acquaintance named Charles William Anderson Scott . . . who always went by his intitals C. W. A. for his own personal reasons. In any case, instead of a thrashing, Jim was soon off with Scott on an evening of drinking and hearing about his plans to use the Moth to break the speed record from Australia to England. The more he heard, the more Mollison began to wonder why he shouldn't get into the record breaking business himself. It seemed to him to be no more ". . . arduous than flying passengers in ice and fog, and a job faught with considerably less responsibility for public safety." He also surmised there must be easy money involved, so that cinched it for him. He also learned from Scott that one of the "angels" for financing record flights was none other than England's oil baron, Lord Wakefield . . . "none other" because Wakefield's Australian manager, Cyril Westcott, was one of Jim's frequent passengers!

Mollison wasted no time putting the arm on Westcott to assist him in getting sponsorship from Wakefield . . . and to his pleasant surprise, he succeeded. He soon had a special Moth built with steel fuel tanks . . . Jim had a worry about fire after once seeing a RAF buddy crash and burn literally at his feet . . . and eventually was in Darwin ready for a pre-dawn take-off for England. "For once on the eve of a big flight," he wrote, "I drank nothing" . . . but even sobriety would fail him on his first attempt at fame and fortune. The heavily leaden Moth failed to clear powerlines on take-off and was promptly rolled up in a ball. Miraculously, there was no fire and Mollison walked away unscathed . . . directly to the nearest telegraph office where he wired Lord Wakefield asking for another chance. Amazingly, he was given the funds for another airplane.

In 1931, with just 5 pounds to his name

Sportsman Pilot

BACK ISSUES

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and a Wakefield letter of credit for fuel and oil, Mollison set out for England . . . and 8 days later he flew upon the world's stage by beating Scott's time by a day and and a half. When he arrived at Croydon airport, he saw a huge crowd waiting on the ground. At first he figured "somebody important" was also arriving that day, but quickly realized **he** was that somebody. After a tumultous welcome, Jim found that ". . . it was pleasure, apparently, for people to house my aeroplane free of all cost. Questions of money and accommodation were matters which had not exercised much of my attention up to now. Now I found so many kindly people to worry over my living problems that I let them do it all. It was most agreeable.

"'Would I care to accept the use of a suite reserved for me at Grosvenor House?' I would and I did.

"Tailoring establishments insisted, despite my protests, on clothing me.

"My mail was interesting. Heading the list was an envelope containing a cheque of impressive proportions with the signature 'Wakefield' scrawled at the bottom right-hand corner.

"A gentleman I had never met named Whitelaw, later to become a good friend, wrote from Le Touquet: 'Would I please accept a Cheque for 1,000 pounds as a token . . .?' I answered his letter first post.

"The telephone rang: 'Mr. Mollison, this is Sir George Sutton of the Daily Mail. Please accept our congratulations, etc. . . . by the way, did I imagine I could fly an aeroplane for his newspaper on an instructional tour of Scotland?' I said I did imagine it. 'We are prepared to offer 200 pounds a week plus expenses. That suit?' That, Sir George, I said, will suit."

In all, Mollison raked in about 7,000 pounds for his first record flight, which he calculated was more than seven years' salary at the rate he was being paid to fly airliners just weeks before. Thereafter, he never looked back. For as long as he could pull it off, he lived by making a record flight or two each year . . . or, at least, a record attempt . . . and lived high on the hog the rest of the time.

In November of 1931, Jim set out in his Moth in an effort to break the England-Cape Town, South Africa speed record . . . but ended upside down in an Egyptian corn field. A fuel transfer pump had malfunctioned and he had decided to land by moonlight to repair it. The smooth appearing field he chose was some farmer's delight with corn 5 feet tall covering it from end to end.

The following March he tried for Cape Town again, this time in a D.H. Puss Moth. In order to save some 800 miles, he flew straight over the Sahara desert . . . considered foolhardy at the time . . . and arrived at Cape Town in 4 days, 17 hours and 19 minutes, a new record. This was an astonishing feat of endurance . . . 64 hours had been spent aloft behind a roaring engine . . . and, in fact, when Jim reached his destination just after dark, he was so exhausted that he was suffering from double vision. The lights of the airport bothered him so much he dared not attempt a landing, so after circling a couple of times, he flew to a nearby beach and landed there. He touched down on the sand, but allowed the airplane to swing into the surf where it gently tipped over on its back. He completed his trip to the airport in a taxi. This flight was the first down the west coast of the African continent to South Africa.

After returning to England that summer of 1932, Mollison had a special Puss Moth built for even longer distance flying. In addition to the standard tankage, he had two large tanks made and installed in the cabin . . . one in front and one behind his seat, which was moved aft to the normal position of the passenger seat. The total fuel capacity was 162 gallons, which provided an endurance of 33 hours. With this aircraft Jim would make the first solo flight of the Atlantic from east to west against the prevailing winds. It was named "Heart's Content" after a village in Newfoundland which he hoped would be his landfall on the North American continent (he missed it by a few miles). Taking off from a level stretch of beach north of Dublin, Ireland, he crossed the Newfoundland coast in just over 19 hours and flew on through bad weather until he was forced to land in a field near the village of Pennfield Ridge, New Brunswick. He had been aloft for 31 hours and 20 minutes. He later flew on to New York City and a tumultous welcome . . . and began preparations for flying back to England immediately. He attempted to fly to Harbour Grace, but fog and storms forced him down at Sydney, Nova Scotia where a series of telegrams from his new wife, Amy, and his sponsor, Lord Wakefield, convinced him to pack it in and return home with the airplane by ship.

In February of 1933, Jim set out again in "Heart's Content", hoping to become the first person to fly the South Atlantic solo from east to west. Bert Hinkler had already flown solo from South America to Africa, but no one had flown solo in the opposite direction. Departing from an airport near Dakar at 12:50 a.m. on the morning of February 9, he flew off through the equatorial heat and humidity of the South Atlantic. The heat was so bad that Jim gradually peeled off all his clothes, except for his pith helmet, and amused and refreshed himself the rest of the way by swigging on a bottle of brandy and imagining the headlines back in England if they knew he was making the flight in the nude! Finally sighting land, he squirmed back into his clothes, finished off the brandy and threw the bottle overboard . . . and landed at Port Natal, Brazil after 17 hours and 40 minutes aloft. Jim later flew on to Rio and found the Brazilians were more than a match for his love of partying. For this flight, Mollison was awarded the Johnston Navigation Trophy for the year of 1933. Unfortunately, his faithful little "Heart's Content" would be sold and was crashed by the new owner in the Alps. It should have been preserved in a museum.

A few months later, in July of 1933, Jim and Amy Mollison flew their D.H. Dragon, "Seafarer", nonstop from England to the United States. New York City was their goal, but they ran short of fuel and made a deadstick landing at night at Bridgeport, CT. Just missing the darkened airport there, they rolled the big twin engined biplane up in the proverbial ball, but escaped with only minor injuries.

In October of 1934, Jim and Amy were the first contestants to take off in the MacRobertson race from England to Australia. Firewalling their sleek D.H. Comet, "Black Magic", they led the pack as far as Allahabad, India where they were forced out of the race by three burned pistons. Their time of 22 hours for that distance was a record, but was small compensation for having to sit on the ground and have rivals C. W. A. Scott and Tom Campbell Black speed on to victory in their Comet, "Grosvenor House." Upon their return to England, "Black Magic" was sold to the Portugese government and ultimately crashed. Parts and pieces were brought back to England some years ago and rumor has it that a new "Black Magic" will be built around them.

In the fall of 1936, Jim travelled to the U.S. and purchased a Bellanca Flash from the factory in Delaware. Named "The Dorothy", it was Mollison's intention to first fly it across the Atlantic in record time, then fly on to Cape Town, also in record time. In typical fashion, Jim was out doing the town in New York City when he got the go sign from his weather watchers, so he rushed to the airport and took off . . . still dressed in his tuxedo! The title **Playboy Of The Air** probably resulted from the headlines his clothing . . . and the drinking he did enroute . . . engendered in the international press. Jim arrived in London . . . on gasoline fumes . . . in 17 hours, a new trans-Atlantic record.

By this time his wife, Amy, had kicked him out and had filed for divorce . . . but irrepressible Jim still had one more flight left in him. In December of 1936, with Frenchman Edouard Corniglion-Molinier as co-pilot, he set out from England in "The Dorothy" to break Amy's record to Cape Town. Suffering a persistent fuel leak that made Edward, as Jim called him, deathly ill from breathing the fumes, they forged on nevertheless and came within 250 miles of Cape Town a full three hours ahead of the existing record. Thunderstorms and a solid cloud deck plagued them the rest of the way and although they arrived over their destination in record time, they could not find a break in the clouds through which to descend for the required landing. Eventually, they had to fly to the coast and land in a field near the Cape Agulhas lighthouse.

There would be no record . . . but Jim would quickly forget all that. Within the course of a day or so, he was in Cape Town checking up on the touring Russian Ballet . . . and being introduced to "a charming bevy of agile women to whom Edward with his influence could and did obtain ready introduction."

Incorrigible to the end!

Jim Kimball, whose restoration shop near Zellwood, FL and a number of his prize winning restorations have been featured here in **Sportsman Pilot** over the years, has now added vintage aircraft propeller manufacturing to his list of endeavors. This summer he bought Falcon Manufacturing Corporation, the firm that holds all of Ole Fahlin's type certificates for propellers. If your Travel Air, Waco or whatnot needs a new certificated Fahlin propeller, contact Jim Kimball, PO Box 849, Zellwood, FL 32798 (phone 407/889-3451).

RENO '88

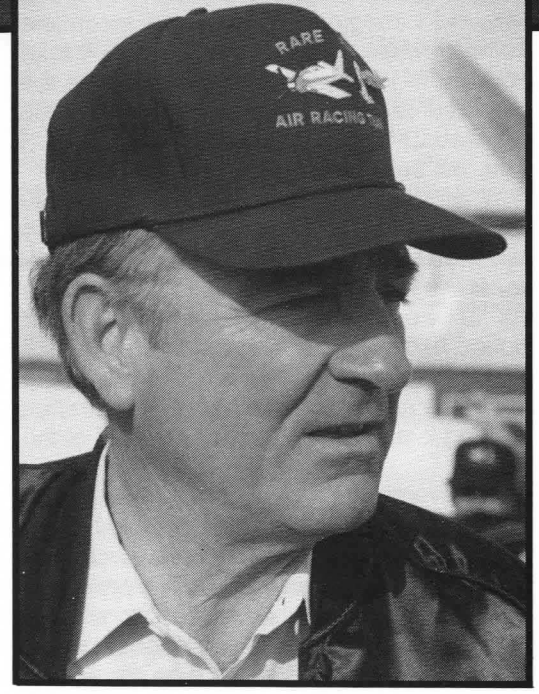
The Round Engine Cometh ... Again

One of the most fascinating . . . and frustrating . . . aspects of air racing is its unpredictability. When men and machines are pushed to their limits, anything can happen . . . usually when you least expect it. With all the exotic new Unlimited racers built for this year's Reno races, for instance, who would have predicted in advance that the eventual winner would be one of the oldest racers still active today . . . an airplane that was racing and winning in the early 1970s and which became a virtual direlict for four years before being resurrected to race again in the 1980s?

This, after all, was the year Tom Kelly and John Dilley of Ft. Wayne, IN would burst upon the scene with their new **Vendetta,** a Mustang fuselage mated to a Learjet 23 wing and trimmable horizontal tail. It was the year Don Whittington would return to the world of air racing with his Mustang, **Precious Metal,** transformed into a clone of the late, lamented Red Baron . . . powered by a Rolls Royce Griffon and counter-rotating 3-blade props. The Red Baron still holds the world's speed record for propeller driven, recip engined airplanes at just a fraction over 499 mph, so . . . ! And this was the year Skip Holm would join the ranks of the round engine drivers, taking the seat of the most awesome marriage of engine and airframe since, well, maybe 1934 when Roscoe Turner stuffed a P&W Hornet in his little Wedell Williams Number 57. Would you believe a Yak 11 with an 18 cylinder, 2,800 horsepower Wright R-3350 on its nose! Its name was, of course, **Mr. Awesome.**

And if the new racers weren't enough competition, consider the proven winners in the field . . Frank Sanders' twice champion R-4360 powered Sea Fury, **Dreadnought,** always meticulously prepared, always aggressively flown by Rick Brickert and always capable of flying at full power for as long as necessary . . . Tiger Destefani's all-conquering 1987 Reno Unlimited champion, **Strega,** a clipwing Mustang with a Dwight Thorn mystery Merlin that still has heads shaking in wonderment . . . John Maloney's R-4360 powered **Super Corsair** that Steve Hinton sneaked into victory lane in 1985 . . . and the clipwing Mustangs of Jimmy Leeward and Scott Sherman that had no less than three Reno Unlimited wins between them for previous owners.

All this, mind you . . . all this talent and speed, and who turns up as the winner of the 1988 Unlimited championship race at Reno '88? None other than Lyle Shelton and his highly modified Grumman Bearcat, the



Lyle Shelton and his 1988 Reno Unlimited champion, Rare Bear.

Rare Bear!

If you have been a reader of **Sportsman Pilot** for very long, you know from our annual Reno reports, that Lyle and his **Bear** have been the hard luck duo to end them all during the 1980s. Always fast, they nevertheless have seemed to almost always end up in a Mayday situation . . . followed by the inevitable deadstick landing. One thing for absolute certain, no one who has been at Reno for the past few years has any doubt whatsoever concerning Lyle's flying ability. He has been masterful in extricating himself and the **Rare Bear** from one hairy situation after another.

It wasn't always that way. The Reno Air Races began in 1964 and after Mira Slovak's win in that inaugural event, Darryl Greenamyer would go on to rack up the most incredible string of wins in the long history of Unlimited air racing, extending back to the beginning of the Schneider Trophy Races in 1913. He won five times in a row from 1965 to 1969 and won again in 1971, all in his legendary clipwing Bearcat, which is now preserved in the National Air and Space Museum in Washington. (Darryl would win again in 1977 in the Mustang, **Red Baron**). Race fans have always been polarized by their support of either the sleek liquid cooled V-12 Rolls Royce or Allison powered Airacobras and Mustangs (Air Force). . . or the Corsairs, Bearcats and Sea Furies with their big round air cooled radials (Navy). By the early 1970s Greenamyer's total domination of the sport was being challenged by the Mustangs, the owners of which were beginning to take full advantage of the fantastic work that had been done on the V-12s by the Unlimited hydroplane racers, pulling off wins in 1970 and 1972. It was beginning to look like the V-12 fans could look forward to a long streak of their own . . . when onto the field of battle came another white knight to champion the cause of the round engine lovers.

Sometime in late 1968 Lyle Shelton, a TWA co-pilot at the time, had bought the mangled remains of an F8F-2 Bearcat that had been cartwheeled down a runway at Valparaiso, Indiana . . . and with virtually no money and a strictly volunteer crew, managed to beg, borrow and reappropriate enough parts to get it rebuilt in time for the 1969 Reno Air Races. Even though it was still in zinc chromate primer, the **Able Cat,** as it was known that first year, attracted a great deal of attention. It was the first of the Reno era Unlimited air racers to be equipped with a big engine . . . bigger, that is, than the engines with which the airplanes had been originally built. Instead of its P&W R-2800, **Able Cat** had been retrofitted with a big Wright R-3350-26WA out of a Skyraider and a DC-7 prop and spinner. Knowledgeable race people recognized the potential of such an engine/airframe combination, but also figured it would take several seasons of development to get it up to that potential. They were right. Although showing flashes of brilliance from the start, it was 1973 before the racer was sufficiently debugged to begin taking up where Greenamyer had left off. In 1973, 1974 and 1975, Lyle would dominate Unlimited air racing, showing up at Reno, Mojave and other race sites as the odds on favorite to be top qualifier as well as the winner of the Unlimited division races. He won at Reno in 1973 at the then astounding speed of 428.16 mph, a devastating 12 mph over the record set the previous year by Gunther Balz in a hot clipwing Mustang. He won again in 1974 but was penalized for not pulling up when Mac McClain declared an emergency (that was the rule in those days). The controversy that ensued is best forgotten, so suffice it to say the late Ken Burnstine was declared the winner and the big Bearcat was relegated to the status of an also ran. Lyle came back in 1975, however, and won at a speed of 429.92 mph, still another record.

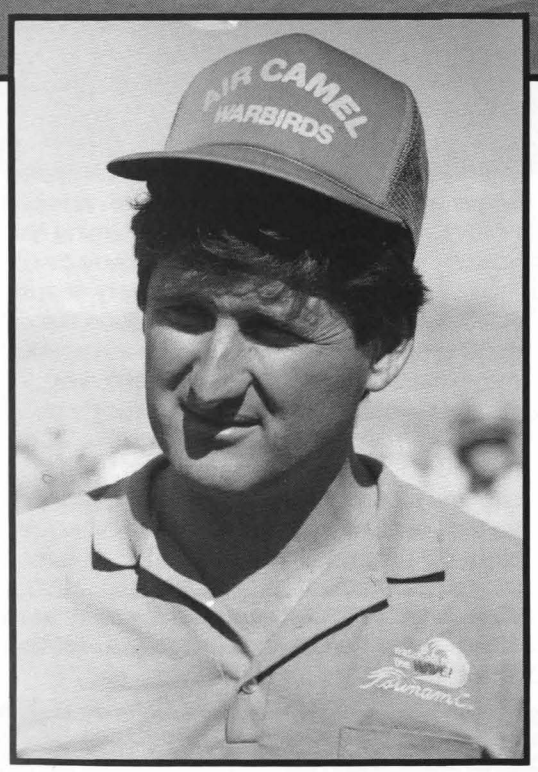
In the spring of 1976, Lyle had a problem during the Mojave race and bellied the Bearcat in. He was uninjured but the airframe was sufficiently damaged so that with the lack of a sponsor to finance its rebuilding, the racer began a four year hiatus in which, as previously noted, there were times when it was virtually a direlict. Lyle and his crew ultimately got their act together, however, and had the airplane on the line again at Reno in 1980. It was still one of the fastest Unlimiteds, but a lack of funds for parts and adequate preparation doomed it, year after frustrating year, to one sort of failure or another.

Finally, last year Lyle was able to come up with sponsorship for the **Rare Bear,** as the airplane has been known in the 1980s. Wichita Air Services and the Jack DeBoer organizations made a commitment that allowed the hiring of a full time crew . . . and this year, for the first time in its existence, the airplane entered a new season truly ready to race. Over the winter, Crew Chief David Cornell and his cohorts made some major modifications . . . modifications that turned the **Bear** into the top contender it had been in the mid-1970s. Much of the work involved the reduction of cooling drag. Oddly

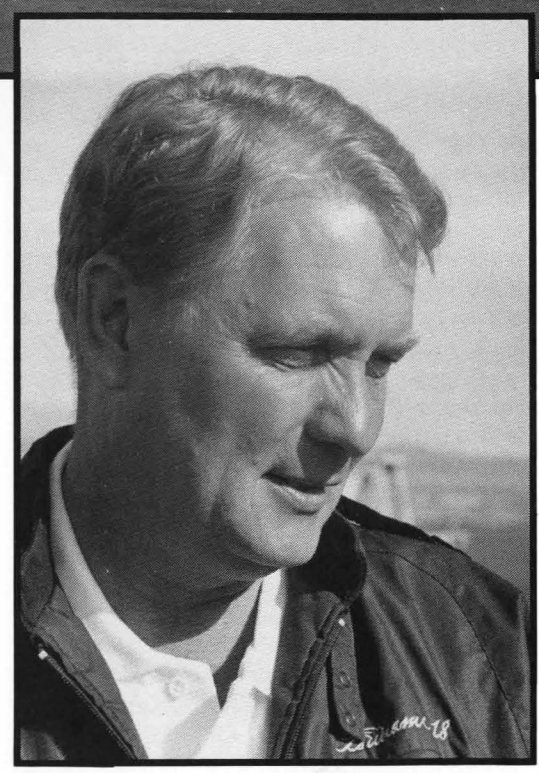
Rare Bear's new DC-7 cowling and Blackburn Beverly spinner.

enough, the engine (by now a Wright R-3350-77) had been overcooled in the past, so the work was aimed at cutting down on the airflow into the cylinders. The old Bearcat cowling was replaced with one from a DC-7, and a spinner from a British Blackburn Beverly was installed that was so large the space between the two was reduced to virtually nothing. An afterbody extending behind the spinner to the main case was made to pinch inward to create a pressure recovery shape. A lot of work was also done to reduce the oil cooling drag and to achieve more thrust from the exhaust stacks . . . and to tighten up all the removeable panels on the fuselage in hopes of reducing surface drag. Someone noticed in an aerial photograph that the airplane's canopy was riding up a quarter of an inch or so in flight, which had to be scrubbing off several miles per hour. A better

Rare Bear's R-3350 exposed for all to see. Note the afterbody fairing behind the spinner.



Steve Hinton and Tsunami



Tsunami owner John Sandberg

means was devised to cinch the canopy down and while they were working in the area, a lot of effort was expended to smooth the airflow around the entire canopy and its supporting framework. A new propeller was also fitted for the 1988 racing season . . . an early Skyraider prop that Lyle says has a better airfoil for racing than the later models. The racer has long had a nitrous oxide system for qualifying or a quick burst of power when needed during a race and it was retained for the 1988 season.

For the first time in quite a number of years, a second Unlimited race was scheduled for this past summer. Held at the Hamilton airport just north of the San Francisco Bay area, it would differ from Reno in that it would take place essentially at sea level. Stead Airport, the Reno race site, has a field elevation of 5,046 feet. Other things being equal, a whole bunch of cubic inches are an advantage at low altitude . . . whereas the supercharger tends to even things up a bit at higher altitude. In any case, Lyle and the **Rare Bear** won the race at a speed of 412.487 mph, serving notice that they were a force to be contended with once again. Adding an explanation point to the win was the fact that Lyle was battling Tiger Destefani and his 1987 Reno superplane, Strega, all the way to the finish line . . . and Tiger doesn't back off for anyone or anything!

Actually, the win at Hamilton was not a guarantee that the **Rare Bear** would get a free ride to the checkered flag at Reno. As noted, the higher altitude would take away some of the advantage it enjoyed at sea level . . . and, in addition, the Bearcat wasn't the only racer to be extensively reworked over the previous winter. After two seasons of problems, John Sandberg took his **Tsunami** home to Minneapolis and virtually rebuilt it for the 1988 campaign. So extensive was the work that the airplane was still scattered all over his shop at the Crystal Airport when the Hamilton race was held. Everything was being aimed at winning at Reno.

One of the problems John wanted to correct was the fact that **Tsunami** had come out a little heavier than had been projected and, worse, was tail heavy. Ballast had been required in the nose to properly balance the airplane and that was like a cancer to John . . . something he always knew was there and something he had to get rid of to be at peace with himself. His biggest project, consequently, was totally rebuilding the tail surfaces in magnesium, which allowed the nose ballast to be removed. While he was at it, the rudder and vertical fin were enlarged to increase stability . . . and that, in turn, allowed him to get rid of the little forest of turbulators and balsa wood ramps that had festooned the vertical fin in previous years . . . temporary fixes to make the fin and rudder more effective.

The problem that had kept **Tsunami** from achieving its speed potential, however, had been a lack of adequate cooling . . . of both coolant and oil. As a result, the whole bottom of the aft fuselage was redesigned and reconstructed. Both the inlet and outlet ducts were redesigned to permit a more straight through channeling of the air . . . and the fuselage structure was extended downward 2 inches in the area between the outlet duct and the tailwheel. This made possible an outlet door that even when fully open, does not hang down into the slipstream to create drag. When originally built, the racer's cus-

tom built radiator was a duplex arrangement - part of the coils for coolant and part for oil. The cooling fins were more densely positioned around the coils for the oil, however, and the cooling air simply took the path of least resistance into the coolant side. That radiator was junked in favor of a more conventional set-up with a separate cooler for the oil.

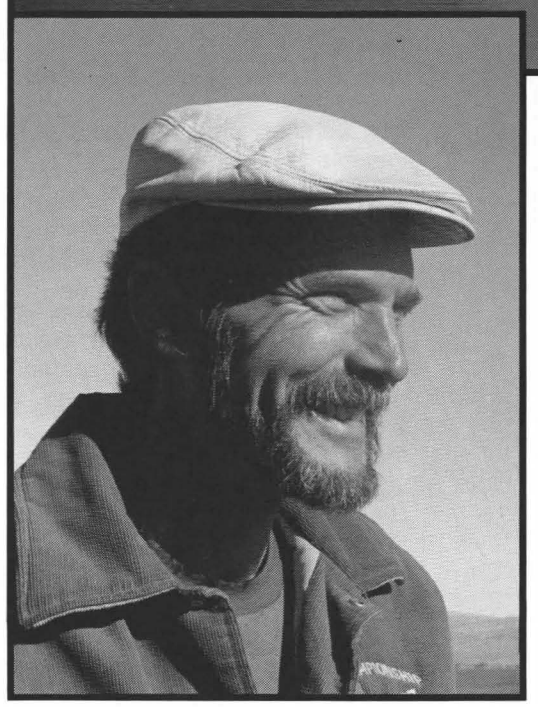
Tsunami's Merlin engine came in for its share of rework, also. Naturally, owners don't want all their speed secrets printed for their competitors to read, but John was willing for us to say that "some heavier internal components" were retrofitted, the gear ratio for the supercharger was changed to permit an increase in boost and the NACA flush duct for induction air, located on top of the cowling and just behind the spinner, was replaced with an external scoop much like that on a P-51A. The problem with the NACA duct had been that with every change of attitude, a radical change in induction air volume would occur. At race speeds the boost would simply go away in turns, and on the landing approach, when the nose came up, the engine would start blubbering because of a lack of sufficient induction air. The external scoop solved all those problems.

Some experimenting was also done with propellers prior to Reno '88. The airplane had previously raced with cut-down T-28A blades, but a set of P-63 blades was tried to see if they were faster. Incredibly, they were 16 mph slower . . . so, needless to say, the T-28A blades went back on the airplane!

Major changes to the flying surfaces of the airframe included shortening each aileron by 18 inches. As a result, aileron control is actually better than before. The surfaces were too large and responsive at racing speeds in their original form, but had been designed that way to ensure adequate control at low speeds. Even cut down 18 inches, however, they provide good lateral control at landing speed . . . down to about 90 knots, in fact. A further major plus for pilot Steve Hinton is the fact that in rebuilding the tail, the horizontal stabilizer was made fully trimable. The cable actuation system for the rudder was also changed . . . to cables back to a bell crank fitted with a pushrod to drive the rudder.

Tsunami's run for the gold at Reno '87 ended at the conclusion of the final heat race when the landing gear collapsed on roll out. It was later learned that the right gear's retraction mechanism was out of adjustment enough to put a tremendous load on one of the drag links . . . which ultimately failed. You can be certain that adjustment now has a very high priority on the airplane's pre-flight checklist! New, lighter main gear doors were built for the '88 race season . . . which brings us to the bottom line. Including the removal of ballast, the modification program reduced **Tsunami's** empty weight by 400 pounds. The airplane weighs "right at 6,000 pounds with the pilot," according to John.

All the changes meant the full test flight program had to be reflown before the start of this year's Reno races. John made the first flight from Crystal Airport's 3,200 ft. runways, but the rest of the test flying was to be done by him and Steve Hinton from St. Cloud, Minnesota's 5,200 ft. runway. The airplane is extremely blind on take off and landing, John concedes, and needs a minimum of 5,000 feet for comfortable operation. Flutter testing was done to 440 knots with no problems, so the racer was declared ready for Reno.



Tom Aberle and his Long Gone Mong . . . getting its race number fancied up a bit.

QUALIFYING

The stage was thus set for what promised to be the most exciting and technically interesting air races since the end of World War II. On hand to challenge Tiger Destefani and his fist full of 1987 race and qualifying records was what appeared in advance to be the fastest field of Unlimiteds ever assembled: new racers, improved old racers . . . and some of the not-quite-fast-enough racers whose pilots live in the hope that the front runners will self destruct and allow them to pick up a gift victory. It has happened several times in the past so nothing ventured, nothing gained, as the saying goes. The interest and excitement extended into the other racing classes, also. Surely, the ultra competitive T-6 aces would have been expending every effort to unseat the 1986 and '87 winner, Eddie Van Fossen . . . and there was no question that Jim Miller had worked hard over the winter to make up the 3 or 4 feet by which he lost the 1987 Formula One championship to Alan Preston. Jim had won every 1988 season Formula One race prior to Reno, so he and his tiny **Pushy Cat** were **ready!** Preston was not only prepared to defend his Formula One crown, but also to challenge 1987 winner Tom Aberle for the Biplane Championship. His **Top Cat** had not been able to start last year, but was primed and ready for 1988.

If I can be pardoned for paraphrasing the title of an old show tune, the theme song for Reno '88 qualifying could well have been "What a Difference a Year Makes." Last year Tiger Destefani, his engine builder, Dwight Thorn, and crew chief, Bill Kerchenfaut, could do no wrong. Everything they touched, in the racing context, quite literally turned to gold. They set a new qualifying record of 466.674 mph, not only won but set a new race speed record in each of their successive heat races and won the Unlimited championship race at a record average of 452.559 mph. Utter, astounding perfection!

This year, however, the gold quickly turned to tarnished brass. Tiger blew his mystery Merlin in his first qualifying attempt, spent the better part of the next two days and nights overseeing the installation of a new engine and at the eleventh hour, just 30 minutes before the official end of qualifying at 5:00 p.m. on Wednesday, he thundered out on the race course, took the green flag . . . and blew the new engine before he was half 'way round! With no time left to install a third engine, Tiger and his spectacular clip-wing Mustang, **Strega,** were out of it for 1988. They did not qualify, so they would not race. It was a terrible disappointment not only for Tiger and his crew but also for all the race fans who had been hoping for a real shoot out among the Unlimited top guns. Tiger could have easily made the race, of course. He could have backed off a little and still have been fast enough to make the top seven that are guaranteed a spot in the Gold championship race, providing they start each heat race. That, however, is not Tiger's style.

The Wright R-3350 powered Yak 11, Mr. Awesome.

He came to Reno to repeat his 1987 performance . . . he came to be top qualifier and he came to win every race he entered. Anything less was unacceptable . . . all or nothing . . . go or blow.

After Tiger blew his first Merlin, the early qualifying interest shifted to Lyle Shelton and Steve Hinton. With **Tsunami's** designer, Bruce Boland, and his fellow Lockheed engineer, Pete Law, in his crew, owner John Sandberg likes to take a scientific approach to racing . . . figuring the odds and trying to estimate just how much of the finite life of their racing engine they should risk in qualifying and each heat race, the goal of which is to have enough left to win the championship on Sunday. Considering Tiger Destefani's 1987 qualifying record . . . 466.674 mph . . . not likely to be exceeded by a great margin, the **Tsunami** brain trust concluded that 470 mph would place them securely atop the Unlimited field. Factoring in the day's meteorological conditions, they quickly calculated the rpms and manifold pressure it would take to fly Reno's 9.222 mile Unlimited course at that speed . . . and sent Steve Hinton off to do the deed. Superb pilot that he is, Steve, of course, hit the speed virtually right on the nose, qualifying at 470.899 mph. Reno race rules permit just one successful qualifying attempt, so although they felt good about their speed, John and his crew knew that if anyone exceeded it, they would not have the opportunity to go out and run at a faster speed . . . which **Tsunami** was easily capable of doing. All they could do was cross their fingers . . . and wait.

When Lyle Shelton roared off on his qualifying run, he knew he had to rely more on elan than erudition. To be top qualifier at Reno's density altitude in his fat winged Bearcat, he knew he would have to lay the lash to every hoss his big ol' R-3350 could crank out . . . and then sprinkle their tails with a stiff dose of nitrous oxide. His race, he knew, would be to cover 9.222 miles before reaching the melting point of his pistons and exhaust stacks. With throttle, water, ADI and nitrous at their limits, he blasted around the course, took the checkered flag, exhaled for the first time in one minute, nine and fifty-six hundredths seconds . . . and sat back to enjoy listening to his crew cheering on the radio. He had set a new Reno qualifying record of 474.622 mph!

As events would transpire, the rest of Unlimited qualifying was strictly anti-climatic. There was the drama of Tiger Destefani's last ditch effort to qualify, but, in the end, no one really came close to Lyle's time . . . or, for that matter, Steve Hinton's. When the clock struck five on Wednesday afternoon, the tally sheet looked like this:

*Lyle Shelton, Bearcat	474.622 mph
*Steve Hinton, Tsunami	470.899 mph
*Rick Brickert, Sea Fury	458.920 mph
*Jimmy Leeward, Mustang	457.078 mph
*Don Whittington, Mustang	453.437 mph
*Scott Sherman, Mustang	449.792 mph
*John Maloney, Corsair	442.319 mph
*John Putman, Mustang	431.565 mph
*Lloyd Hamilton, Sea Fury	424.081 mph
*Alan Preston, Mustang	422.670 mph
*Skip Holm, Yak 11	417.274 mph
*Ron Hevle, Mustang	417.010 mph
*Chuck Hall, Mustang	403.702 mph

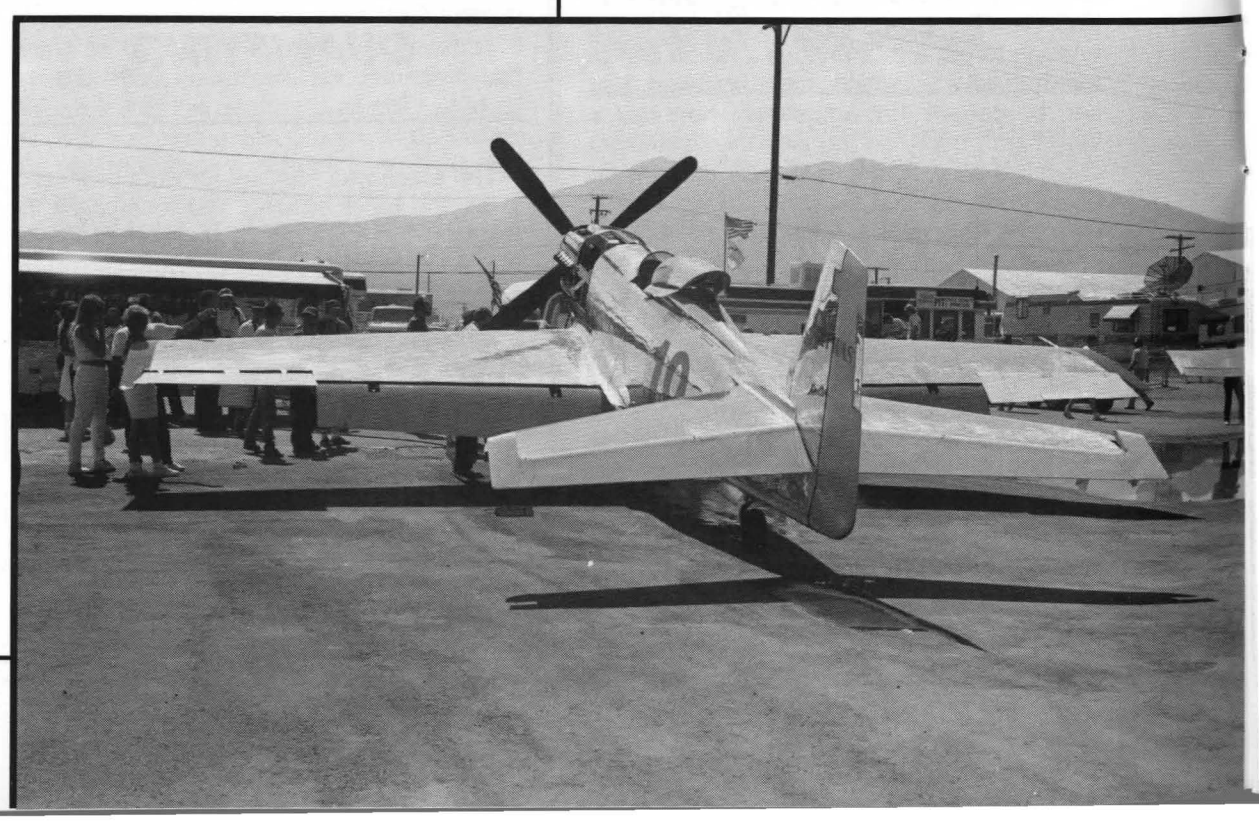
One of the big stories of Reno '88 was the size and speed of the Unlimited field. A record 42 racers were entered, 35 of which qualified . . . and with a record 13 qualifying in excess of 400 mph, it was the fastest field ever assembled. Unfortunately for the owners, pilots and crews of 8 racers, the Reno rules allow just the fastest 27 aircraft to compete . . . but, after all, speed is what racing is all about.

What about the new racers . . . Don Whittington's Griffon powered Mustang, **Precious Metal,** John Dilley's Lear winged Mustang, **Vendetta** (the nickname in the pits was "Learstang"); and Skip Holm's Wright R-3350 powered Yak 11, **Mr. Awesome?** Skip qualified in 11th place at 417.274 mph, but reportedly would have have an easier ride on a Brahma bull with a hot poker up its most sensitive orifice. Simply not completed in time to be sufficiently sorted out, the airplane was a handful and a half on the race course, according to Skip. It must have really been something, because no braver pilot than Skip Holm ever raced. If **he** said it was bad, it must have been horrendous!

Don Whittington qualified on Wednesday at 453.437 mph, the fifth fastest time, but used an engine in the process. Immediately after returning to its pit, **Precious Metal's** cowl came off, followed by the Griffon's heads and banks, leaving nothing in the engine mount but a block and all the long hold-down studs sticking up like porcupine quills. The word in the pits was that Don had only recently bought out a hydroplane racing shop in Seattle that had been running Griffons . . . and that a rescue party was already on the way there for new banks. Not having a heat race until Friday, Don's crew had about 40 hours to get the banks to Reno, re-build the engine out in the open air of the pits and get it running well enough to race. They turned the trick, all right, but as you will learn, their troubles were just beginning.

As for John Dilley and his **Vendetta** crew, the big surprise had been the lack of problems associated with the fitting of their Mustang with Lear 23 wings and horizontal tail. The darn thing flew great . . . in fact, the worst problem was its tendency to float on landings! Their bugaboo, it turned out, was the engine. All the Mustangs are set up for racing in essentially the same way . . . with the blower(s) set up to produce higher boost, with spray bars to cool the radiators and with water injection to lower the induction temper-

The "Learstang", Vendetta



ature. Every time a new racer is built, however, its crew must go through a period of tweaking these systems in order to get them to functioning properly. For most, in fact, it is a process that, at its top end, involves a lot of extrapolation. Few are willing to sacrifice a $60,000 racing engine to learn precisely how much ADI is needed at 130 inches, so they come as close as they dare, guesstimate the difference and find out for sure on the race course. That's why so many new racers break . . . and is pretty much the fate that befell the **Vendetta.** They reportedly "sneezed" their engine trying to qualify . . . which means it backfired through the induction system, damaging the supercharger . . . and without time to install a second engine they had in their semi trailer shop, were left with no other option than limping out on the course late on Wednesday afternoon, hoping against hope that the superior aerodynamics of the Lear wing would allow their sick engine to get them at least the 27th and final place in the Unlimited field. If they could make it, they would have time to install the new engine and fight their way up through the heat races and, hopefully, make the Gold race on Sunday. It was the longest of long shots and, alas, it was not to be. John Dilley gave it his best shot, but with the stricken Merlin popping and cracking all the way around the course, the best he could do was 302.665 mph, the slowest speed recorded during qualifying. Dilley thus joined Tiger Destefani as a spectator at Reno '88 . . . and, unfortunately, the Unlimited races would be diminished in interest by their absence.

There was absolutely no such drama in T-6 qualifying. 1987 and '88 champion, Eddie Van Fossen of Bakersfield, CA, marched through the T-6 field like Sherman taking Georgia. He set a new qualifying record of 232.114 mph and only Tom Dwelle of Auburn, CA was even close at 228.024 mph. The rest of the field went no faster than the third fastest qualifier, 1985 winner, Randy Difani, who averaged 223.744 mph, almost 10 mph slower than Van Fossen. T-6 racing is traditionally the closest competition we see at Reno and the inside or pole position that goes to the top qualifier is all-important. It was bad news indeed for the rest of the field to have Eddie in that slot.

Likewise, the Formula One field was in shock over Alan Preston's qualifying speed of 246.228 mph . . . just a tick and a tock under 10 mph faster than Jim Miller at 236.702. Jon Sharp was third at 235.854 and Ray Cote was fourth at 235.556. No one else was faster than the low 220s. The defending champion, Alan Preston seemed only to have Jim Miller's very fast initial acceleration in the race horse start to be concerned with. Last year's races had gone that way . . . Miller off first in his **Pushy Cat,** with Preston in his Shoestring, **Sitting Duck,** catching up in the final laps to take the win. Could he catch him this year? The huge qualifying margin seemed to indicate he could. The only other variable might be props. In the second year of mandatory use of other than metal props, most racers were still experimenting with different pitch, diameter, blade shape and material combinations. The choice of props had decided the outcome of some races last year . . . but Preston was only about 4 mph faster than the field then. Of course, there was Ray Cote, a rather surprising fourth in his newly acquired George Owl designed **Alley Cat.** An eleven time Reno Formula One champion, he has been fast in every racer he has ever had the time to develop, so no one was taking him lightly.

Don Whittington, left on wing, and his crew with their Griffon engine stripped down to the block.

Defending Biplane champion Tom Aberle of Fallbrook, CA appeared to have things going his way again in 1988 after setting a new qualifying record of 207.718 mph in his **Long Gone Mong.** In the absence of Alan Preston and his highly modified Smith Miniplane, **Top Cat,** in 1987, Tom had absolutely devastated the Biplane class. With his qualifying margin, would it be any different this year?

The Biplane class is unique in that it is actually two groups in one. On one level are the purpose-built racers like **Long Gone Mong** and **Top Cat,** and on another, the 180 Pitts. The racers used to be limited to the O-320 Lycoming, but in 1986 the rules were changed to allow entry by the most numerous of all the midget biplanes, the Lycoming O-360 powered Pitts Special. Further, the new rules allowed souped up engines. The change came about quite frankly because it was hard to assemble a starting field for the class. Knowing there was a huge reservoir of aerobatic pilots out there with 180 h.p. Pitts, many with modified engines, it didn't take a Phi Beta Kappa to figure out how to fill the ramp with little (mostly) red biplanes.

That was it, then. The field was set for the 1988 Reno National Championship Air Races. As the sun sank behind the high Sierra to the west, we had only to wait for morning and at (ha!) precisely 9:10 a.m. for some official to proclaim, "Let the races begin!"

...THURSDAY

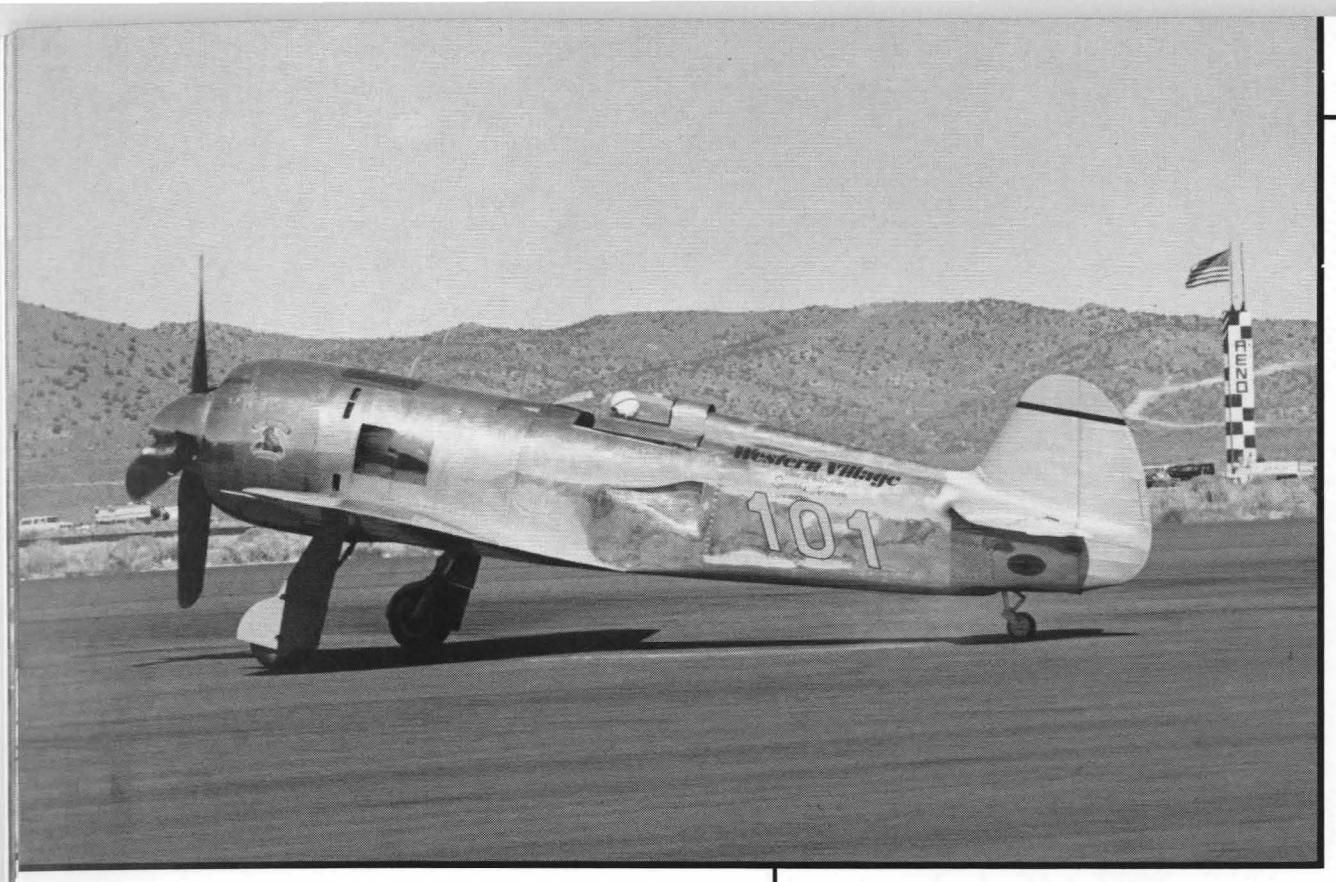
The weather was beautiful throughout the four days of Reno '88. The winds picked up a bit each day and the temperature dropped from a high of 86 degrees on Thursday to the chilly 50s early on Sunday, but you simply learn to bring clothes for any eventuality to Reno and dress for whatever Mother Nature dishes out. The great thing about the area is that located in the high desert, the visibility is absolutely fantastic. When it is sunny . . . and it usually is . . . colors literally sparkle and everything appears to be in sharp focus. The place is a photographer's paradise.

Thursday was a full day of racing, with no less than nine heats scheduled. First was the slowest group of Biplanes . . . mostly those 180 Pitts referred to earlier and, sure enough, the winner was an aerobatic pilot turned air racer. Winning the first race he had ever run was Buck Bateson, a Susanville, CA chiropractor and occasional air show performer. His speed for 5 laps was 159.446 mph, which was nearly 3 mph faster than he qualified. Obviously, he adapted to closed course racing quite readily.

Next up were the slowest Formula Ones, and the winner was Dan Gilbert, an airline pilot from Belleville, MI in a Cassutt IIIM. He averaged 203.578 mph. Interestingly, last place went to Rick Todd of Georgetown, CA in a Taylor Titch. Though not competitive, it was interesting to see the little British homebuilt out there trying its best against the racing thoroughbreds.

The middle group of Formula Ones was up next and the winner was Scott Morris of Evansdale, Iowa in a taperwing Cassutt. He was followed by Gary Hubler of Caldwell, ID and former astronaut, Deke Slayton, in his distinctive little semi-elliptical winged **Stinger.**

The fourth race of the day was for the seven slowest qualifying Unlimiteds and proved to be the most interesting of them all. The field consisted of the Mustangs of Delbert Williams, Bud Granley and Lefty Gardner; the Sea Furies of C.J. Stephens, Robert Lamplough and Brian Sanders; and the R-2800 powered Yak 11 of Bob Yancey. The Frank Sanders family had decided that son Brian would get his first start in Unlimited air racing this year, with he and his brother Dennis sharing Frank's stock 2-place T Mk. 20



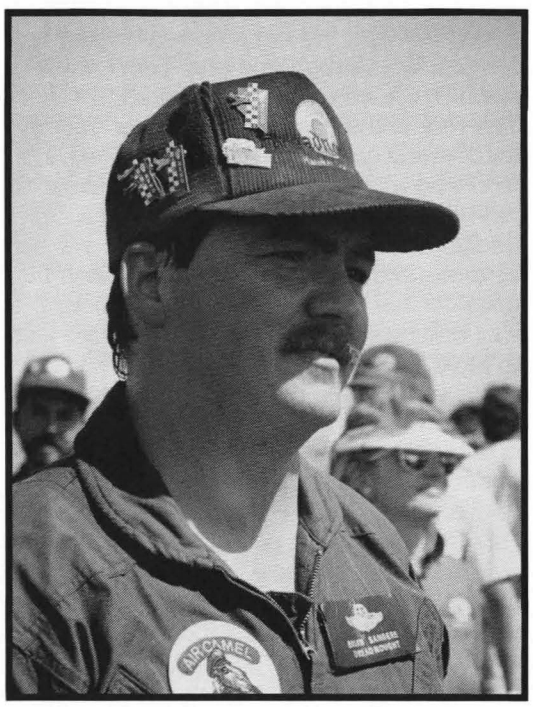
Bob Yancey's P&W R-2800 powered Yak 11.

Sea Fury. Dennis qualified it, then turned the seat over to Brian for the Thursday race. Although his first race, Brian was anything but a beginner. Superbly trained as a pilot by his father, the crew chief for the Sanders' other Sea Fury, the mighty **Dreadnought,** and an alternate with his father on the Team America formation aerobatic team flying the Siai Marchetti F-260, he was as ready to race as anyone could be. Robert Lamplough, purported to be a British grain farmer and owner of a collection of warbirds, was also a rookie and by chance was flying a Sea Fury formerly owned by the Sanders. The sleeper in this group was Bob Yancey. He had experienced nothing but trouble in his R-2800 powered Yak 11 earlier in the year at Hamilton, sneezing the engine every time he pushed the power up to around 50 inches. The problem was subsequently traced to the carb induction system . . . something in the shape of the ducting to the carburetor was causing turbulence so that only so much power could be pulled before the backfiring would begin. A new air intake system had been installed before Reno, but although it cured the sneezing, Bob could only pull about 55 inches of manifold pressure. That was enough to get him into the field with a qualifying speed of 373.766 mph . . . 23rd out of 27 entries . . . but was nothing like what he would have liked to have run had he been able to pull the 70 inches he knew his Pratt and Whitney was capable of pumping out.

When Bob Hoover turned Heat 1C loose with his traditional, "Gentlemen, you have a race!" who charges to the front? Brian Sanders, that's who. The Unlimited races commence in a long shallow dive, with the racers line abreast off Hoover's right wing. The big heavy racers like the Sea Fury seem to have an edge in these starts, and Brian was taking full advantage of the situation. Conversely, Bob Yancey with perhaps the lightest racer in the field and limited to 55 anemic inches, was trailing far behind the rest. Brian led the first couple of laps and was really looking good. Just like his brother, Dennis, in his first race a few years ago, Brian flew like a veteran . . . down low and very tight around the pylons. For several glorious minutes it certainly did not appear that Brian was flying the slowest airplane in the 1988 Reno Unlimited field, the 27th and last qualifier to make the field at a speed of 361.093 mph. It couldn't last, of course, because there were several airplanes in this group that were much faster . . . like Delbert Williams who could already be seen coming up through the field in his Mustang, **Pegasus,** like a runaway locomotive. In short order he blew past Brian and sped on to win the 6 lap race by a margin of over 10 mph over the second place racer and by nearly 30 mph over most of the rest of the field. Del had obviously been sandbagging during his qualifying run or, possibly, had been experiencing a mechanical problem of some sort. In any case, he was much too fast for this slow group and by virtue of winning this heat, would advance to a faster heat on Friday.

Even with Williams running away with the race, there was still some excitement back in the pack. After a terrible start, Bob Yancey began picking up speed and suddenly it became obvious that he was really moving. Just as Williams had done, he began picking off the racers in front of him . . . and within a few laps he was up to second place. He was not able to gain on Del, but it appeared he was racing at about the same speed at the end of the heat. His race average of 378.653 mph was slow compared to Williams' 389.447, but that was a reflection of his slow start rather than how fast he was flying at the end. Unfortunately, Bob's performance was to prove to be a little too good for his liking. When the pairings came out later in the day for Friday's races, he found he had been bumped up into the Silver or middle group of racers. I talked to him the following morning and his comment was, "Yes, I race the Silver today . . . straight out last again!" With his manifold pressure limitation he still would have been highly competitive in the slower or Bronze grouping, but hopelessly outclassed in the Silver. Contrary to some of the scuttlebutt in the pits, Bob told me the Yak was handling to his satisfaction . . . in fact, his comment was that the more he flew the airplane, the more confidence he had in it and the more he realized that it actually flew quite well for a big engined racer. He also confirmed that the NACA ducted oil coolers mounted in the fuselage just aft of the cockpit were working well . . . at least up to the 55 inches the R-2800 has been able to pull to date. "Whether they will still cool the engine when we get it up to the 70 inches we want . . . well, we'll just have to wait and see," was Bob's typically straight up front answer.

After his great start, Brian Sanders spent the remainder of the race backing up through the field . . . not through any lack of effort on his part, but simply because most of the other racers were so much faster. Brian, in fact, flew more aggressively as the race went on in an attempt to keep from being passed. He kept flying the turns tighter and tighter until, at last, he inevitably cut a pylon . . . and the 12 second penalty he automatically incurred ultimately pushed him back to last place among those who finished the race. It didn't really matter because he had very ably accomplished what he had set out to do: start his first race and do a good job of flying it. When he landed and climbed out of the Sea Fury, he was greeted by his cheering crew . . . and a big bucket of ice water that splashed him from head to toe! He had just been initiated into the ranks of professional race pilots. His mother, Ruth Sanders, later quipped, "Well, this family is now short a Sea Fury . . . and I know these guys!" What she meant, of course, was that with three race pilots in the family and just two Sea Furies (the stocker and Dreadnought), a third one might well be on the way . . . more about that later.



Brian Sanders . . . soaked from head to toe after competing in his first Reno air race!

The next race was the first "A" grouping to fly, the very fastest Formula Ones. Taking absolutely nothing away from the tremendous flying skills of the pilots, the race went precisely by the script I outlined earlier in the section on qualifying. Jim Miller accelerated to the front . . . Alan Preston caught him in a couple of laps and sped on to the win. The

order of finish was right off the Formula One qualifying sheet for the first five places: Preston, Miller, Sharp and Bob Drew. An interesting aspect of this race was the first appearance of **Bummer's Bullet,** a new all-composite Formula One racer designed and built by Robbie Grove. Robbie will be recalled as the designer/builder of the Glasair TD-like **Whistler** he displayed at Oshkosh a few years ago and which was featured in **Sport Aviation.** Robbie decided not to market that airplane as a homebuilder's kit and one of the reasons he didn't is that he wanted to concentrate on building Formula One racers. Built for Jim Bumford, an airline pilot from San Diego, **Bummer's Bullet** is notable for its very high aspect (read long and skinny) wing. The theory is that with such a wing, a racer does not slow down as much in the turns around the pylons. We watched this aircraft closely during the race and it certainly appeared that the wing was doing its thing. Despite being handicapped by a sick engine, Bumford could hold his own with some of the slower racers on the straightaways, but when he went into the turns, he would appear to quickly accelerate ahead of the aircraft near him. What was happening, actually, was that he was maintaining his speed while the others were having their speed scrubbed off by their relatively lower aspect (short, wide) wings. Unfortunately, the Bumford team suffered from engine problems throughout the running of Reno '88, but this is an airplane that may be heard from next year. Robbie Grove has also been making composite high aspect ratio wings for existing racers, so that with the similar Stockbarger wings already on many of the more successful Formula Ones, the look of these smallest of air racers has radically changed over the past few years. A "square" winged stock Cassutt is an exception these days instead of the rule it once was.

A faster group of Unlimiteds was next to race, and the drama here was that although he finished first, the 1979 Reno Unlimited winner, John Crocker, was penalized for cutting not just one but two pylons . . . which put the second racer to take the checkered flag, the Mustang of rookie Bill Reinschild, in first place. Crocker always flies a smooth, tight race in his clipped wing Mustang, but with oil reportedly streaming over his windshield, he got too close to a couple of pylons and cut inside them.

Two T-6 races in succession were up next and, again, qualifying speeds were the tip-off for the ultimate outcomes. Randy Difani, the 1985 T-6 champion and the 3rd fastest qualifier this year, won his heat, as did the second fastest qualifier, Tom Dwelle.

The final race of the day was Unlimited Heat 1A . . . for the fastest qualifiers other than the first six. The 7 plane field consisted of one very fast racer, John Maloney's R-4630 powered **Super Corsair,** a fairly fast Mustang, **Georgia Mae,** flown by John Putman and some much slower airplanes, if you believed their qualifying times: Lloyd Hamilton's R-4360 powered Sea Fury, **Furias;** Alan Preston's clip wing Mustang, **Dago Red;** Skip Holm's R-3350 powered Yak 11, **Mr. Awesome;** and Chuck Hall in the Mustang, **Miss America.** This race was of great importance to the participants because the winner would bump up to the Gold championship group . . . so, we would expect to see some hard charging. We got that all right - John Maloney made it absolutely clear from the instant Bob Hoover turned 'em loose that he intended to go for the gold. He blasted to the lead and kept pulling away from the rest of the field throughout the 6 lap event. He averaged 445.072 mph in winning, which was almost 3 mph faster than his one lap qualifying time! Oddly enough . . . because it doesn't usually happen that way in Unlimited racing . . . the rest of the racers finished in precisely the same order they had qualified and started the race. John Putman was almost 20 mph slower than Maloney, however. Skip Holm finished 5th at a speed of 405.860 and looked quite smooth out on the course. It was quite different in the cockpit, apparently, because after the race he parked **Mr. Awesome** for the duration. It will be interesting to see what this thing can do in 1989 after a year of development.

Bummer's Bullet, an all composite Formula One with very high aspect ratio wings.

...FRIDAY

The first race of the day was T-6 Heat 1A featuring defending champion Eddie Van Fossen. As always in T-6 racing there was a lot of wonderful, deep throated round engine noise and a lot of wing tip to wing tip competition . . . except for the lead. Up front it was strictly no contest. Fast Eddie was blowin' 'em away! He beat two-time T-6 champion Ralph Twombly by over 6 mph and would have lapped the rest of the field had the race lasted much longer.

Next came Biplane Heat 1B . . . which included Peggy Penketh of Auburn, CA in her **Passion Pitts.** She and her husband, Mike Penketh, hold the distinction of being the first husband and wife racing team to ever race at Reno . . . and last year Peggy became the first woman to ever race in a Gold championship race. Her racer is a stock appearing Pitts Special, but husband Mike's is a very highly modified Pitts with plywood covered Pitts Eagle wings and a souped up Lycoming O-360. The winner of this heat, however, was Guy Paquin of Downey, CA, who somehow came up with a tremendous amount of speed since qualifying at 169.559 mph. He won the 5 lap heat at an average speed of 180.197 mph in his racing Mong, **BuzzJob,** far out-distancing the rest of the field. Peggy Penketh was a very creditable 5th out of a field of 8 racers.

The slowest Formula One racers were up for the next race and Bill Berle of Beverly Hills, CA emerged as the winner in his Cassutt, **Boo Ray.** You old timers will recall that this is the racer built years ago by the late Marion Baker, whose little delta wing homebuilt was a star attraction at the EAA Convention back in the Rockford days. Second was Ray Cote, filling in for Kathy Gray who was unable to be at Reno this year to fly her Owl racer, **Pogo.**

The middle group of Formula Ones followed right on the heels of the slowest and Jim Bumford was able to squeeze about 10 more miles per hour out of his **Bummer's Bullet** than on Thursday . . . but it wasn't enough to beat John Dowd of Syracuse, KS who pushed his Cassutt IIIM to win at a speed of 221.824 mph.

Next came Unlimited Heat 2C, and this time John Crocker was able to stay outside the pylons and win at a speed of 391.347 mph. The real excitement in this race, however, was provided by Bob Yancey. Once again, he was dead last at the start, but just as on Thursday, he quickly began running the leaders down and by the end of the 6 laps his green winged Yak 11 was nipping at John Crocker's heels. The crowd was really cheering him on, but the race ended just one lap too soon. Crocker's winning speed was 391.347 mph and Bob was just behind at 390.460. Howard Pardue, who always puts on a great show with his beautiful stock Bearcat, was third at 387.239.

The next race was one we had been waiting to see since last year . . . the first matchup of 1987 Biplane champion Tom Aberle and Alan Preston, who as previously noted, had sat out of last year's competition. Unfortunately, the wind had shifted that morning, forcing the field to make its race horse takeoff to the west rather than to the east, as is usually the case. The problem with this direction is that since the race course is flown counter-clockwise, the racers have to take off, fly to a scatter pylon on the far west end of the airport, make more than a 180 degree

Wave of the future? The Pond Racer crew was much in evidence at Reno '88 . . . and in the Tsunami pit. Here they pose with Tsunami designer Bruce Boland: left to right, Burt Rutan, Dick Rutan, Bob Pond, Bruce Boland, John Knepp (Electramotive) and Steve Erickson (Scaled Composites).

turn to the left, then race back to the start/finish line to begin the actual competition on the course. This is a hairy looking operation with some very close flying around the scatter pylon. It was here a few years ago that Dan Mortensen miraculously escaped serious injury in the crash of his Rutan Racer after it was caught in the propwash of another racer. The pilots say it is very difficult to see the scatter pylon until they are right on top of it, and it is not unusual to see racers aimed in all directions as they search for it. The hairy part comes when they finally see it and all try to swing in at the same time. I wish there were a better way to start the Biplane and Formula One races when the wind dictates a take-off to the west.

Both Tom Aberle and Alan Preston apparently have very high pitched props on their Biplane racers because both are a little slow getting off. The Pitts always win the drag race to the first pylon, but as soon as Tom and Alan get their engines wound up, they quickly zip to the front of the pack and begin to pull away. Alan came out of the scatter pylon maelstrom ahead of Tom and had the lead by the end of the first lap of racing. Tom was moving up fast, also, but was held back by traffic just long enough to loose any chance to catch the flying Preston. Alan had **Top Cat** really screaming and finished the heat at a speed of 201.999 mph, almost exactly 10 mph ahead of Tom. This lifted quite a few eyebrows because Alan had gone 5 laps about 4 mph faster than he had qualified. Suddenly, the Biplane Gold race set for Sunday had taken on a whole new face!

Immediately after winning the Biplane heat, Alan Preston had to dash to his **Sitting Duck** to participate in the second race in as many days for the fastest of the Formula Ones. Do you remember the script for Thursday's race? Just scratch out the day and write in "Friday" as far as the first three places were concerned. Ray Cote and Bob Drew who had finished fourth and fifth on Thursday were pushed further down the list on Friday, however. Scott Morris, who had won the 1B heat the day before, was advanced to the fastest group and finished fourth, just behind Jon Sharp. Alan Preston's speed in this heat was 236.203 mph.

The next race, Unlimited 1B, was highly reminiscent of the heat in which John Maloney bumped himself up into the Gold championship group in the **Super Corsair.** This time it was Lloyd Hamilton who showed the rest of the field that he wasn't fooling around . . . that he intended to go for the gold, also. He led all the way in his big red and gold R-4360 powered Sea Fury, **Furias,** averaging 411.963 mph. John Putman was second in **Georgia Mae** and Bill Rheinschild was third in his Mustang, **Risky Business.** Alan Preston had been scheduled to fly **Dago Red** in this heat, which through a quirk in the scheduling would have been his third in succession . . . Biplane, Formula One and Unlimited . . . but he chose good judgment over valor and put Skip Holm in the Mustang for this event. Skip finished a creditable fourth despite a bad oil leak.

T-6 Heat 2B was up next and Tom Dwelle racked up his second win in as many days. No one else was close to his speed of 229.917 mph . . . and a few pit dwellers began to wonder out loud whether Tom might just provide Eddie Van Fossen with a little competition on Sunday.

Then, finally, it was time for the fastest of the fast, for the top Unlimiteds to show their hands for the first time. This first race for the big boys is always about 90 per cent strategy and 10 per cent racing. Nothing is really at stake . . . all the racers are assured a starting spot right on through the championship final on Sunday afternoon, providing they merely start every heat, so there is really little incentive for anyone to use up much of his engine. The only one certain to run hard is Rick Brickert in **Dreadnought.** This crew's strategy is the same each year: run hard in every race in hopes of luring the Mustangs into doing just enough damage to their high strung Merlins (and, this year, Griffons) to cause them to begin to self destruct about half way through the Sunday race. About as subtle as a sledge hammer . . . and until last year about as effective.

When Bob Hoover turned 'em loose, sure enough Rick surged into the lead. Steve Hinton pinned **Tsunami** right on his tail for the first lap, but eased off noticeably for the remaining five laps. Everyone else was obviously taking it easy . . . except for Scott Sherman and Don Whittington who encountered problems of various sorts and did not finish. Whittington, in fact, had trouble retracting his gear on take-off and even after finally getting it in the wells just in time to come down the chute with the rest of the racers to start the heat, had to pull out just seconds later. His crew had done wonders just getting **Precious Metal's** Griffon rebuilt and briefly run in before the start of Friday's heat, but obviously it was not yet ready to run at racing speeds. Meanwhile, Rick Brickert was still thundering around the course like it was Sunday and all the money was on the line. He completed the 6 laps of Heat 2A in 7 minutes and 21.03 seconds, which translates to a speed of 449.149 mph. Steve Hinton was a distant second at 434.480 and Lyle Shelton was even further back in third at 423.401. John Maloney was fourth at 420.177 and Jimmy Leeward was relegated to last among the finishers by virtue of three pylon cuts.

Friday, then, belonged to Rick Brickert and the **Dreadnought** crew. I later talked to crew chief Brian Sanders and expressed amazement over the reliability of the racer's R-4360. I inquired whether anything new had been done to it since last year . . .

"No, we've got it worked out. We've been running this engine since 1985 and don't be surprised if we run it again in 1989."

Curious, I asked how much time was on the engine . . . knowing full well that a very high percentage of it would be full throttle operation.

"You don't do a lot of fun flying with the airplane. I think we may have a total of 100 hours on it, and I don't think you'll find any Merlins out here with that many. Not those with the level of performance of **Dreadnought.** If you look at it, with just 100 hours, the engine is barely broken in. It takes a while to get an engine this size to get worn in and every part of it happy. The screens have never been dirty, but every time we go out and race they come back cleaner than ever. We're not a part of the mosquito abatement program, either. If you watch some of the other big radials you'll notice they blow a lot of smoke when they are up and running. This one doesn't . . . this is a great motor."

Early this year there were published reports that claimed the Sanders were going to build a new, more streamlined racer, using a single place Sea Fury airframe. **Dreadnought's** engine, prop and tall vertical tail would be used, but the rest would be new. I asked Brian about this . . . and got the straight scoop. First, the only thing that would have been changed was the part of the fuselage from the firewall back to just in front of the tail. The existing 2-place fuselage section would be removed and a single place fuselage would be dropped in to replace it. This would allow the fitting of a smaller,

much cleaner canopy . . . which, obviously, would make the airplane faster. The switch never took place, however, because the Sanders were simply too busy to get it done in time for Reno '88. It may happen this winter, however, Brian told me.

I also asked Brian if any work had been done on the airframe since last year and was told that a smaller horizontal tail had been installed. The purpose, he said, was to lighten the elevator stick force.

"It helps with the fatigue factor. When you're out there running 500 mph and pulling 4 Gs, you've got some heavy forces."

I also talked to John Sandburg after the race and was told that Steve Hinton had pulled 100 inches on the first lap, then eased back to 85 inches the rest of the way. I asked him if the same strategy would be followed on Saturday and his quick reply was, "Oh no! We want the pole on Sunday, so we'll be going for it tomorrow."

I had to assume that others would have the same objective, so it appeared we'd see some action on Saturday afternoon. As it turned out, I didn't know the half of it!

...SATURDAY

Saturday at Reno is the first big public day and this year a record crowd of 48,000 race fans poured through the turnstiles to witness what would be one of the most stirring spectacles in the long history of the event. The Air Force Thunderbirds would arrive to perform their spectacular, ear splitting formation aerobatic routines in F-16s and as on every day of the races, any momentary lull in the program would be an opportunity for the military to send some of its aerial hardware down the flightline . . . C-5s, B-1s, U-2s, B-52s, F-4s, F-5s, F-18s . . . you name it. Everything except the Stealth Fighter. All of them plus the regular air show performers . . . the Eagles Aerobatic Team, Lefty Gardner, Bob Hoover, Jim Franklin, the Golden Knights, Joann Osterud, Brigitte de St. Phalle, Team America, Smoke-N-Thunder (a jet car) . . . were at their best on this sparklingly clear, sunny day, but nothing would compare with the fireworks late that afternoon.

It started routinely enough. Dave Morss of San Carlos, CA easily won the Biplane Bronze championship in Dan Mortensen's modified Mong, the **Amsoil Pacific Flyer,** at a speed of 183.496 mph — nearly 13 mph faster than the second place finisher, Michael Stubbs, of Yucaipa, CA in a Pitts Special. This was another case of a built-for-racing biplane ending up in a race with mostly stock configured Pitts . . . whether by clever strategy or mechanical problems in the heats. Well known air show pilot, John Helton, of Boulder, CO was third in his highly modified Pitts.

The Formula One Bronze championship was up next and the winner was Jim Harris of Goldendale, WA in one of the many taper-wing Cassutts at Reno '88. 68 year old retired airline captain Bobby Budde of Hollister, CA was second in the one-off **El Bandito.**

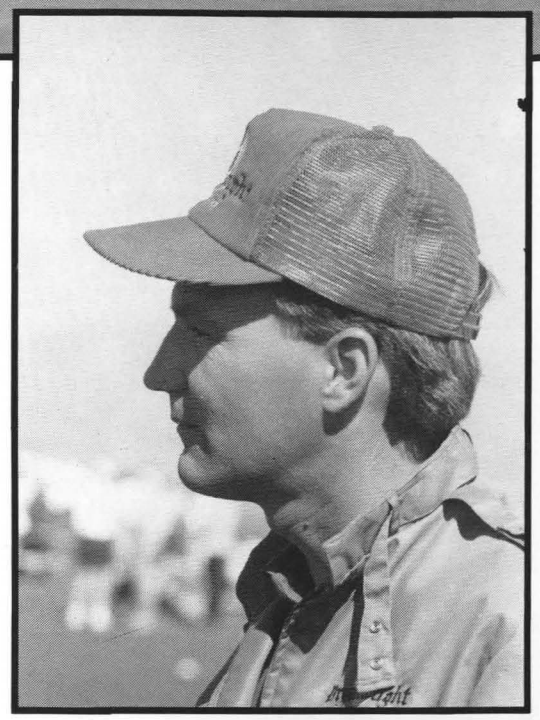
Rocky Jones of Newport News, VA was third in one of the more venerable Formula One racers still active today, the Minges Special, **Ol Blu.**

The Biplane Silver championship race was given the green flag at high noon on Saturday and Roger Rourke of Maricopa, CA emerged the winner in his Pitts, **8-Ball.** His average speed was 168.585 mph, which would have placed him third in the supposedly slower Bronze championship race. As previously noted, the Bronze winner was flying a built-for-racing machine, but sometimes slower speeds in a given heat or championship race are more a reflection of just how much it takes to win rather than how fast the winner's airplane really is. You go as fast as you're pushed, the racers like to say. Doug Kempf was second in his not-recognizable-as-a-Smith Miniplane, **Bully Bee,** and Peggy Penketh finished in third place in her **Passion Pitts.**

T-6 Heat 2A led off this memorable afternoon and once again it was Eddie Van Fossen all the way, start to finish, in **Miss TNT.** Ralph Twombly was second and Jim Good of Casper, WY was third. Send that Gold championship trophy on down to the engraver, guys . . . the handwriting is on the wall!

Unlimited Heat 3C was the beginning of the final shake-out for positions in the Bronze, Silver and Gold championship races on Sunday. Where one finished today would determine where he would start tomorrow. Strategy really begins to come into play in the Saturday heats . . . and not everyone is trying to advance to the next level. Some, knowing they will be an also-ran if bumped up into a faster bunch of racers, prefer to stay in the slower classification where they might win a championship trophy. Both the Bronze and Silver trophies are coveted almost as much as the Gold. It takes really big bucks to compete for the Gold today (unless you do your own work on your racer like the Sanders family does), so the Silver and, particularly, the Bronze races are more in the nature of a sportsman competition. That does not mean the racing is any less fierce or that the pilots are any less skilled. It's simply the amount of money that was available to put a given airplane in the races.

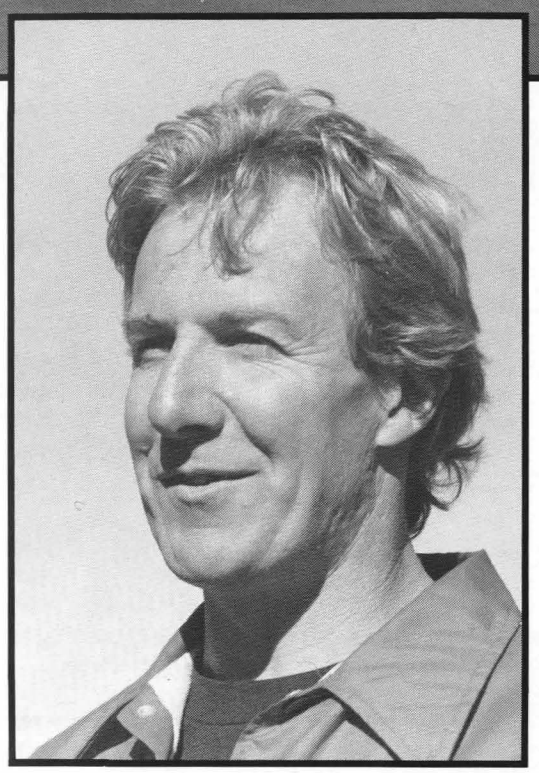
Delbert Williams made it quite apparent that he wanted to be in the Silver race on Sunday. He charged to the front in his Mustang, **Pegasus,** and in the end only had Lefty Gardner and his Mustang, **Thunderbird,**



Rick Brickert and Dreadnought

close enough to worry about. Del won the heat at a speed of 396.208 mph, Lefty was second at 392.604 and Mickey Rupp was third in his Mustang, **Old Crow,** at 387.701. Howard Pardue broke the Mustang string by pushing his Bearcat into fourth and . . . ah, yes, there was Gary Levitz in fifth with his beautiful red Mustang, **Miss Ashley.** Except for his first race on Thursday when he was a little slower, he was amazingly consistent in his qualifying and race speeds: give or take a mile per hour or so, he was averaging about 380 mph every time he went out on the course. He did it again in this heat — 379.296 mph. Running a John Sandberg prepared Merlin and in radio communication with John during each heat, Gary's racing had all the earmarks of a very carefully programmed and skillfully executed effort . . . the sort of programming that has a specific goal in mind. A Bronze goal, perhaps?

And speaking of bronze, the next race was for the T-6 Bronze championship. After the usual traffic jam at the first turn and two or three laps of wing to wing aerial mahem, the field finally strung itself out and John Luther of San Antonio led the parade to the finish line in his **Texas Red.** His winning speed was 213.850 mph. Ray Schutte of Van Nuys, CA was second in **Race II** at 211.689, and Bud Granley of Bellevue, WA was third in



Jon Sharp and his Aero Magic . . . getting a prop to check out a rough mag.

Lickety Split at 210.835. Bud, of course, is familiar to many of you for his spectacular aerobatic performances at Oshkosh in the various factory Glasairs, a pleasure he shares with Bob Herendeen.

Two unlimited races remained on that beautiful Saturday afternoon, and race fans will remember each for a very long time. First up was Heat 3B, the middle group of Unlimiteds, with the winner earning a spot in the Gold Championship on Sunday. The starting field was nearly an all Mustang affair . . . Bob Yancey's little green winged Yak 11 was the only black sheep in the flock. John Putman's Mustang, **Georgia Mae,** was the fastest qualifier in this group and had run hard in the previous heats, only to finish second to John Maloney on Thursday and Lloyd Hamilton on Friday. He was obviously trying to get into the Gold championship, and the odds were that, today, it would be his turn to advance. When Bob Hoover turned 'em loose, there was no doubt about it . . . John put the hammer down and kept it there, winning the 6 lap event at a speed of 414.654 mph. There was plenty of excitement behind him, however. John Crocker and Alan Preston waged their own private battle for a time, as did Bill Rheinschild and Wiley Sanders, who had taken over the reins of his **Jeannie Too** from Ron Hevle, who had qualified it and raced in the previous heats. Ron, incidentally, had been checked out in Lyle Shelton's **Rare Bear,** because there was just the chance Lyle might have some scheduling problems in connection with his airline captain duties.

Just when it appeared the racers would string out a bit and begin a parade to the finish line, it happened . . . like a string of Chinese firecrackers going off, the Merlins began to pop. In a matter of seconds David Price, Chuck Hall and John Crocker were shooting into the sky in all directions, trading speed for altitude. Bob Hoover, who tries to escort stricken racers down to a landing in case their windshields are covered with oil, probably didn't know which way to turn. Hall and Crocker managed to get down O.K., but it was obvious from the beginning of his approach that rookie David Price was in deep tapioca. He was high and hot and did not touch down until he was half way down the runway. Bob Hoover was right over the top of him and was heard on the thousands of hand held radios in the pits to instruct Price to ground loop his Mustang when he reached the end of the runway. The overrun area was like a gravel pit and plunging into it at 75 or 80 mph could be life threatening. David did as he was told . . . spinning around at the last moment, wiping out his left main gear, damaging his left wing and curling his prop blades . . . but he and the airplane survived to race again another day.

The order of finish behind Putman was Alan Preston, Bill Rheinschild, Wiley Sanders and Bob Yancey . . . dead last just like he said he would be in this faster group. Just wait until next year when you're pulling 70 inches out of that R2800 . . . right, Bob?

And then, finally, the moment had arrived. The big boys were up . . . and this time they would be showing their hands. The pole position was at stake and at least Shelton, Brickert, Hinton and maybe Maloney would be going for it. Bob Hoover brought 'em down the chute, turned 'em loose . . . and Steve Hinton shot **Tsunami** into the lead like an arrow from a bow. For the very first time . . . during a race . . . since the little homebuilt had appeared on the scene two years ago, it was truly up to speed. It was screamin'! When the very fastest Unlimiteds are letting it all hang out, they are in a steep turn almost all the way around the 9.222 mile course, and like a jet they are outrunning most of their sound. It's the most awesome sight in all the world of motor sports, in my opinion. Steve was standing on his left wing when he swept past the pits and grandstand the first time around, and the wail of his Merlin whapped like a shock wave an instant after he passed our vantage point. Then right behind him in rapid succession came two deep throated bro-o-o-m, bro-o-oms . . . Rick Brickert and Lyle Shelton's big radials at full song. Behind them came a cacophony of wails and booms from radials and V-12s . . . all except Don Whittington who was still having problems of some sort and had already pulled out.

After the first lap and with a good jump on the field, Steve obviously backed off the throttle just a bit, but he was still extremely fast and was keeping Rick Brickert at bay behind him. Rick was not giving an inch, however, and unquestionably had **Dreadnought's** throttle bent right over the stop. Lyle Shelton was right behind him in **Rare Bear** and was apparently content to sit there through the early laps to see if **Tsunami's** Merlin could sustain such strain. The rest of the field was bunched up not far behind the leaders . . . and it was obvious that Steve was pulling all of them along at a pace that many probably did not want to be running on Saturday. Maybe a record pace.

With most eyes on the front runners, there were likely very few of us in the big crowd who actually saw the beginning of what happened next. Someone standing near me had a hand held radio and yelled, "Mayday!" when he heard a pilot declare an emergency on the race frequency. Every head within earshot jerked around and up, searching the sky for a stricken racer . . . but before many of us could spot it, we heard, "There's another one!"

And that was just the start!

In the next couple of minutes or so, sheer pandemonium reigned supreme in the sky over Stead airport . . . Jimmy Leeward, Scott Sherman, John Maloney, Lyle Shelton . . . Merlins, 3350s, 4360s . . . smoke . . . steam . . . glycol . . . streaming across the sky in all directions . . . Bob Hoover darting around like a yellow dragonfly trying to determine who needed him most . . . frantic yells over the race frequency to get that blankety-blank gas truck off the emergency runway!

Somehow everyone managed to get down O.K. . . . except Jimmy Leeward. His Merlin had popped at a point on the course from which he either couldn't reach one of the three available runways or, possibly, someone else was already landing on the one he needed . . . in any event, he had to choose an abandoned taxiway that cut diagonally across between the two emergency runways. Unfortunately, several helicopters and a fuel truck were parked at the far end, and in an effort to get stopped before crashing into them, he got on his brakes so hard that the Mustang went up on its nose. There was an instant when we feared he would go over on his back, but somehow Jimmy wrestled the beast back on its tailwheel and to a stop . . . just short of the choppers.

Meanwhile, of course, a race was still going on. More or less. Steve Hinton was still streaking around the course with abandon, and Rick Brickert was still straining every rivet in **Dreadnought's** hide to catch him. Far behind them came Lloyd Hamilton in **Furias,** and behind him came . . . **no one!**

No one, race fans! Just three racers remained to take the checkered flag. Hinton, Brickert . . . . . Hamilton, in that sequence and separation. When it was all over, this wildest and wooliest race in recent Reno history was also found to be the fastest ever run. Steve had pushed **Tsunami** to a race record speed of 462.218 mph! Rick also broke the old record with a speed of 457.014, which was just 1.906 mph slower than he had qualified! Lloyd, who had nothing to prove for the last couple of laps, was a light year back at 393.462 mph.

We remained in the pits that evening until it was almost dark, getting damage reports from some of the crews and critiques on the day's race from the few finishers. Steve Hinton and Rick Brickert are good friends of many years standing and although fiercely competitive during a race, can get together afterwards and kid each other about their respective performances. Steve's first words to Rick were, "You finally had to ride in my turbulence . . . and it's about time!" Rick just grinned and took it all in stride, because he knew the frustration the **Tsunami** crew has experienced trying to get their airplane debugged. Both young men are past national champions and have experienced the full range of racing luck that befalls those who go out to do battle with other men, machines and the immutable laws of nature. Most of the time, they know all too well, they'll come up short . . . so when they win, **celebrate!**

The happiest guy I found was **Tsunami's** owner, John Sandberg. His highs are higher and lows are lower than anyone's connected with the project because this is his dream, his personal challenge in life . . . and, finally, the airplane was showing its potential. He was particularly elated because Steve's devastating performance had been accomplished with such relative ease. "He pulled 110 inches on the first lap and came back to 100 inches for the rest of the race. We can do that all day!" The airplane and all its systems had performed perfectly, he told me . . . and his hopes for the championship race the following afternoon could not have been higher.

The scene was, of course, more subdued just across the way in **Dreadnought's** pit . . . but no one was moaning the blues. The oil screen had been pulled, checked and found to be clean as a whistle . . . the exhaust stacks were O.K. . . . so the racer's big R-4360 had shown it could run at a faster speed for a longer time than it ever had before and do it with no apparent strain. As for tomorrow, everything was still according to plan. Viewed from their standpoint, Rick had pushed **Tsunami** harder than it had ever been pushed before . . . into the unknown, really, so we would all just have to wait 24 hours to see how much it had left. One thing was certain: there was absolutely no doubt in the Sanders' crew's collective mind that their racer could go out and run 8 laps just like it had today. **Quiet confidence** was perhaps the best way to describe the mood in the **Dreadnought** pit when we left it on Saturday evening.

Surprisingly, things weren't a great deal different in the **Rare Bear** pit . . . but the crew certainly was a lot busier. When Lyle Shelton had pulled up and out of the race, everyone assumed the worst. The Bearcat was streaming smoke and that usually means a blown engine. Not so, we found . . . even though the airplane looked terrible when it was towed into the pits. The left side of the fuselage looked badly burned, with some of the sheet metal warped into grotesque shapes. Fortunately . . . and rather amazingly . . . most of the damage turned out to be superficial. Apparently, Lyle told us, a gear door had not completely closed on take-off and at racing speed, this was pressurizing the accessory section or back side of the engine so much that the stainless steel heat shield under the left side exhaust stacks had been pushed out into the exhaust stream. That was about like holding a piece of metal in the exhaust blast of a jet engine, so it was no wonder that Lyle's cockpit quickly began to fill with smoke . . . and why he quickly pulled out of the race and got the racer on the ground. The good news was that the engine had suffered no discernible damage, and buoyed by that news, the crew had set to work immediately to repair the sheet metal damage. By the time we got by, the heat shield had been hammered back to its original shape and no where could we find any concern over whether the **Rare Bear** would be ready to race on Sunday.

Most of the other crews of racers that had to pull out of the race were also finding that their problems were not terminal. All would be able to race tomorrow . . . all, that is, except Jimmy Leeward. We would not see his Mustang until the following morning, but one look at its slightly curved prop blades . . . and the implications that had for the reduction gear box and the crankshaft . . . and we knew the **Leeward Air Ranch Special** was done for the year. It was really too bad. He and his new crew chief, Tony Goetz, had worked all winter to get the Mustang ready to race at Reno, they had posted the fourth fastest qualifying time . . . but, alas, it was not to be their year.

With Jimmy out of the Gold championship race on Sunday, Alan Preston and **Dago Red** were bumped up from the Silver category to take his place.

...SUNDAY

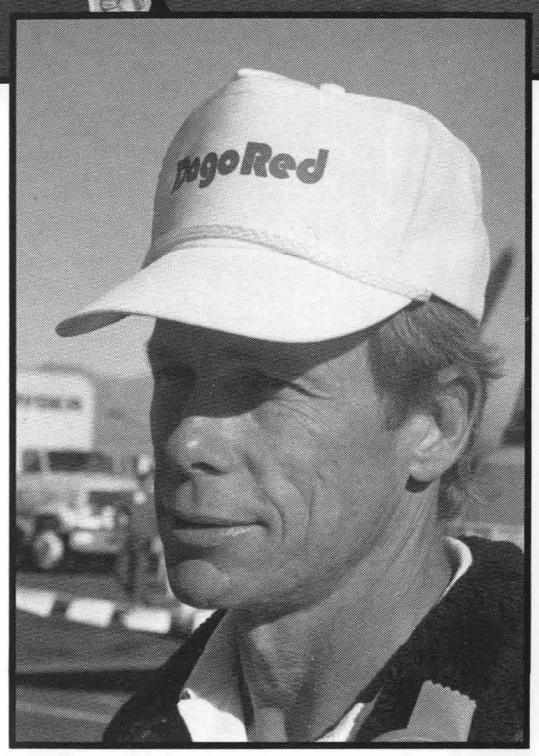
Sunday is championship day at the Reno Air Races. Unlimited racers vie for the Bronze, Silver and Gold championships; the T-6 and Formula One racers for the Silver and Gold; and the Biplane racers for the Gold.

Jim Miller and his Pushy Cat

The first trophy run was for the Formula One Silver championship . . . and the winner without a lot of stress and strain was Ray Cote in his Owl, **Alley Cat.** With a race speed average of 222.590 mph, he finished well ahead of George Budde in the Cassutt, **Miss USA,** at 213.227 and Deke Slayton in **Stinger** at 213.034. Ray Cote, as noted earlier, has a reputation of being able to get more out of a given racer than anyone else, so by winning the Silver in his first year with the **Alley Cat,** it will be very interesting to see what he can do with it next year after a winter of development time.

Charles Hutchins of Texas City, TX must have been exercising some sort of prescience when he named his T-6 racer **Silver Baby** because, of course, he ended up winning the 1988 T-6 Silver championship. He just nipped Nick Macy of Tulelake, CA in **Six Cat** by two tenths of a mile per hour(!) . . . 219.977 mph to Macy's 219.764. Jim Gist of Grapevine, TX was third in **Big Red** at 216.150.

As events would transpire, this bright but



Alan Preston and his Biplane category winner, Top Cat.

a little chilly Sunday would belong in great part to Alan Preston. He laid his first claim to that distinction by winning the Biplane Gold championship. Strictly a race between Alan and Tom Aberle, it began just as had their earlier encounters: a couple of the faster Pitts off the ground first . . . Alan in **Top Cat** off just ahead of Tom in **Long Gone Mong** . . . and after the first lap and a half, it was a two plane race. Both racers appeared to be in top form and both were skillfully flown. They appeared to be so closely matched in speed, however, that Tom simply was not able to make up the small advantage in acceleration Alan enjoyed in the race horse start. Both finished the 8 lap race at a record speed, but Alan was faster at 205.918 mph to Tom's 203.981. The two of them were so fast, in fact, that the rest of the 8 plane field was flagged after 7 laps! Mike Penketh was a distant third in his modified **My Pitts** at 179.893 mph. Mike believes he has the fastest Pitts Special around, and he obviously proved it on this day.

Alan Preston had won the Biplane Gold, but he had a problem. The Formula One Gold championship race was scheduled next and while he was still in the air preparing to land, the Formula One racers were already being lined up for the race horse start. Once on the runway in **Top Cat,** Alan brought the tiny biplane to a stop as quickly as he could, steered it off to the side of the runway, shut it down, climbed out . . . and began running as fast as he could back toward the ramp where his crew had **Sitting Duck** waiting for him! When the racing officials realized that Alan had abandoned his Biplane racer on the side of the runway, cars and pickups began racing across the airport from all directions, some converging on the racer and some chasing the fleeing pilot. Alan wears bright red running shoes when he races and from as far away as the pits, we could see them better than we could see him. It looked like a scene out of an old Keystone Kops flick . . . red shoes really digging down the side of the runway . . . with the Kops roaring up and down taxiways and out across the sagebrush in hot pursuit. Actually, they weren't trying to apprehend him; they were simply trying to catch up and give him a ride to his Formula One. It was an hilarious little interlude that ended well . . . Alan did make it to **Sitting Duck** in time and was quickly roaring down the runway in quest of still more gold.

The race began like all the rest had; Jim Miller out to a quick lead, but with Alan coming on strong. He passed Jim at about the usual point in the race, but Miller hung in there and tried every trick in the book to go back into the lead. It was all to no avail, however, and with a lap or so remaining, he pulled up and out of the race with a problem of some sort. While a common occurrence in Unlimited racing, a Mayday is quite rare in any of the other racing classes. Whatever the reason, Jim was able to land without incident . . . while Alan raced on to capture his second Gold championship in the span of about an hour. With a tip of the hat to the Olympics that were going on at the time, he also should have been presented the gold medal for the 220 meter run!

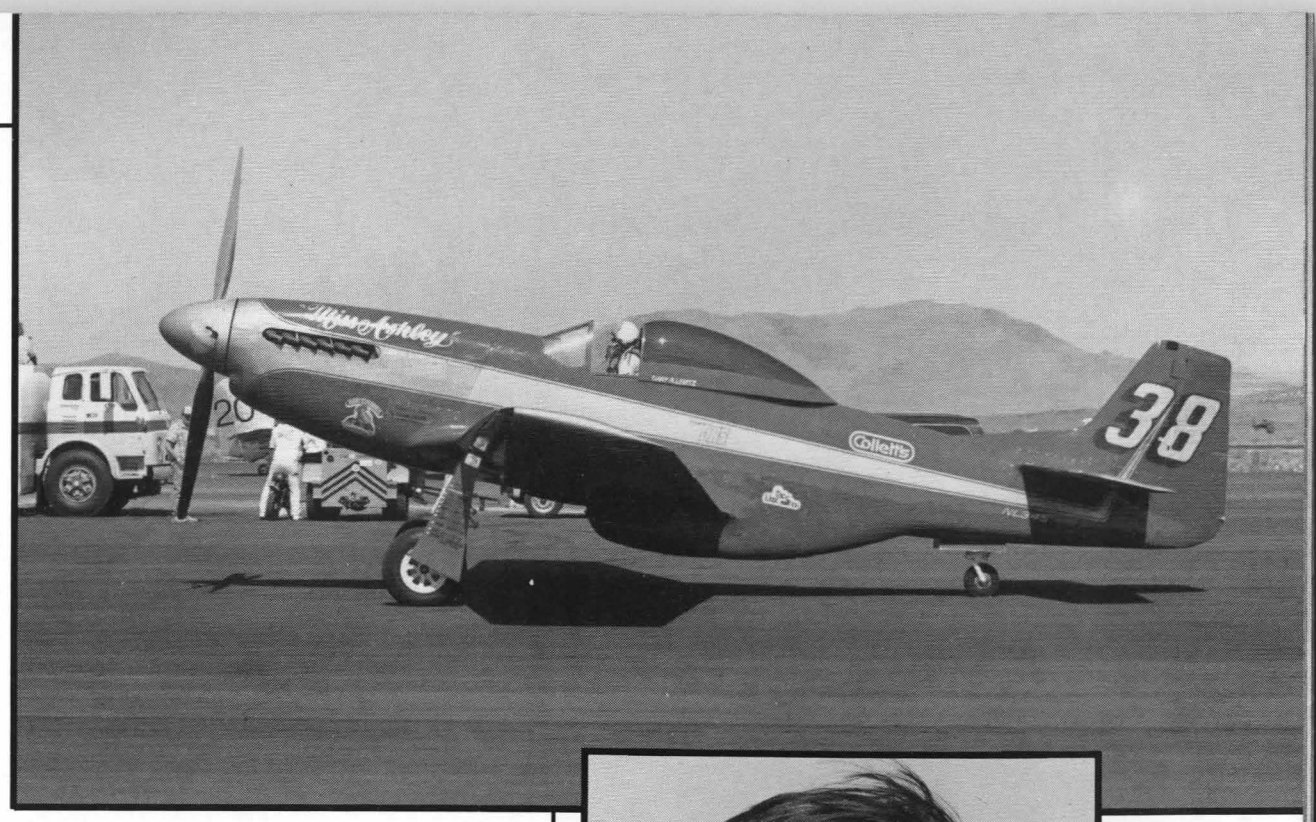
Alan's speed for the 8 laps was 240.748 mph. Jon Sharp was second in his taper wing Cassutt, **Aero Magic,** at 234.668 and Scott Morris was third in his Cassutt, **Sahara,** also sporting a tapered wing, at 230.305.

The Unlimited Bronze race was up next, and for many of us it turned out to be a case of suspicions confirmed. Gary Levitz put his Mustang, **Miss Ashley,** in front and ran his programmed 380 mph race to perfection, winning the Bronze Championship going away. His actual speed was 381.347 mph. If there had been a trophy for consistency, Gary would have won it hands down. John Muszala of Elsinore, CA was second in the Sea Fury, **Cottonmouth,** at a speed of 374.980 mph, and C.J. Stephens of Santa Rosa, CA was third in another Sea Fury, **Baby Gorilla,** at 368.869. Dennis Sanders, who had assumed the seat in the family's Sea Fury from brother, Brian, was fourth at 363.458 mph.

Rookie Bill Rheinschild is going to have to be certain he sends John Crocker a Christmas card this year . . . and maybe even a flagon of John's favorite Christmas cheer. For the second time during the '88 Reno races, first on Thursday and then on Sunday, John made Bill a present of first place by cutting a pylon. It was a rather strange way to win the Silver championship for Unlimiteds, but Bill wasn't looking John's gift horse in the mouth. John crossed the finish line first in his clip wing Mustang, **Sumthin Else,** but cut the number one pylon on lap four, was penalized 16 seconds and was relegated to second place. Bill Rheinschild actually finished second in his Mustang, **Risky Business,** but was boosted into first by Crocker's cut. Bill's winning speed was 414.495 mph and John's corrected speed was 405.971. Ron Hevle was third in the Mustang, **Jeannie Too,** at 399.197.

The Third Annual Eddie Van Fossen Benefit Air Race . . . otherwise known as the T-6 Gold championship . . . was up next, and, yes, the flying Dutchman led every inch of the way. 229.759 mph was all he had to ask of **Miss TNT** on this occasion, which didn't even leave her breathing hard. All things considered, Tom Dwelle finished a very creditable second at 227.943 in his **Tinkertoy,** and Randy Difani was third in his **Thunderbolt** at 220.817. None of this ho hum stuff is intended in any way to diminish Eddie's accomplishments at Reno '88. It is, rather, to impress upon you readers of **Sportsman Pilot** the total domination he had over the field this year. Because they are all stock airplanes, the T-6 category is by far the most competitive of the racing classes, so it naturally follows that it would be the most difficult to dominate. To do so three years in a row is nothing short of incredible. The key to Eddie's success appears to be meticulous preparation. **Miss TNT** is a show piece, a Grand Champion at any fly-in, and seems to look even slicker each year. Eddie had it up to Reno championship standards in 1986 and rather than sitting on his laurels, he obviously has continued to tweak it just a little more each year. With the kind of head start he had now, it is going to be very, very hard for anyone to catch up with him in the years ahead.

Then it was time for the grand finale . . . the Unlimited Gold. Reno goes all out for this championship race, with all sorts of pomp and ceremony. The racers, their pilots and their crews are lined up in front of the grandstands just like the start of the Indy 500. After introductions, speeches by race and city officials, the pilots man their planes, start their engines on cue and taxi out to the thunderous applause of the huge crowd to start the race. It's heady stuff and unquestionably has the pilots on an adrenalin high before they even get their racers in the air.



The Unlimiteds take off behind pace plane pilot, Bob Hoover, in the order of their finish in the last heat race, and once aloft, line up in that same order off Bob's right wing. The order . . . fastest first, of course . . . was Steve Hinton in the Merlin powered **Tsunami**; Rick Brickert in the R-4360 powered Sea Fury, **Dreadnought**; Lloyd Hamilton in the R-4360 powered Sea Fury, **Furias**; Scott Sherman in the Merlin powered Mustang, **Stiletto**; Lyle Shelton in the R-3350 powered Bearcat, **Rare Bear**; John Maloney in the R-4360 powered Corsair, **Super Corsair**; Don Whittington in the Rolls Royce Griffon powered Mustang, **Precious Metal**; John Putman in the Merlin powered Mustang, **Georgia Mae**; and Alan Preston in the Merlin powered Mustang, **Dago Red.** It was the fastest field of piston engined air racers in the history of the sport . . . four Mustangs, two Sea Furies, a Bearcat, a Corsair . . . and a homebuilt. Three radial engines and six V-12s.

Everyone got off O.K. . . . no landing gear or gear door problems . . . and Bob Hoover quickly had them lined up and ready to head down the long, shallow "chute" to begin hostilities. After a couple of pre-arranged power increases, Bob glances down the line one last time to be sure no one is getting a jump on the rest, then sings out in his finest Tennessee twang, "Gentlemen, you have a race!" . . . after which he pulls straight up and out of the fray.

If you're standing down in the pits as we always are, the racers are momentarily hidden by the grandstands as they come thundering down onto the race course. The instant they emerge on the other side, you know who has grabbed the lead . . . and this time it was that unmistakable fat little white fighter plane with the tall skinny vertical tail, the **Rare Bear!** Right behind it was the big silver **Dreadnought** and behind it was the rest of the field bunched up like a swarm of bees. Where was **Tsunami**? Our attention was momentarily directed to a racer already pulling up and out of the pack . . . yep, Don Whittington again . . . then back to the leaders as they sped down the long straight toward pylons 3, 4 and 5, the far end of the roughly rectangular course. As the racers run down this straight, the parallax is such that it is difficult to determine their relative positions . . . but all is revealed as they bank vertically and pull hard around the pylons. Lyle Shelton had extended his lead over Rick Brickert . . . and there, finally, was Steve Hinton in third.

That order, Shelton, Brickert and Hinton, was the race right through to the checkered flag. As always, Rick was giving it his all, but it was obvious that Lyle could do anything with him he wanted to. Lyle simply maintained a comfortable lead and actually slowed a little in the late laps. If Rick began to creep up on him, he would squirt out ahead again . . . seemingly at will.

The question on 50,000 lips, however, was "What's wrong with **Tsunami**?" At first Steve seemed to be just sitting back letting Lyle and Rick set the pace, perhaps waiting until the late laps to pull the trigger. Soon, however, it became painfully obvious that he was slowly losing ground to the leaders. Something was wrong . . . badly wrong. Those with stop watches found that Steve was turning the course at a steady 430 or so, lap after lap. He was not racing, he was simply cruising at . . . what? A limit imposed by overheating, the failure of some system . . . what? Knowing how fast the racer had run the previous afternoon, it was maddening to see it shackled like this.

Meanwhile, there was some excitement back in the field . . . or maybe stark terror would be a more appropriate term. Don Whittington had pulled out at the start because his counter-rotating propellers had picked that moment to run wild. Shutting down his Griffon, Don was ironically faced with almost precisely the same situation Steve Hinton had in the similar Red Baron in 1979. With the 6 windmilling prop blades acting as an almost solid disc to brake the airplane, it quickly assumed the flight path of a dropped anvil. Perhaps recalling what had almost happened to Steve when he tried to reach the runway, Don veered off instead and bellied into a dry lake bed just east of the airport. **Precious Metal** was pretty severely damaged, but it . . . and Don . . . will race again another day. The approach end of Runway 26 is now officially named "Griffon Gulch", according to Steve Hinton.

Next up for thrills and chills was Alan Preston. In contrast to his fabulous success in the Biplane and Formula One classes, he had problems with his Mustang, **Dago Red,** almost all week. It started when a crew member accidentally ran a tractor tug into the wing. A thorough inspection seemed to indicate the damage was superficial, but, according to Alan, the airplane "never flew right" afterwards. Then, prior to take-off for the Gold championship race, the canopy would not lock properly. Alan thought the cranking mechanism would hold it . . . but when he accelerated to about 420 mph, the canopy blew open. The suction tried to pull his helmet off and did succeed in pulling his oxygen mask up over his eyes. When he yanked it down, he had a windshield full of desert landscape rushing up at him, but was able to pull up in time. With enough of that nonsense, he wisely pulled out of the race and landed. We noticed that his canopy was open as he touched down and assumed he had oil on the windshield . . . but we later learned from a crew member just how close a call Alan had experienced.

When Lyle Shelton flashed across the start/finish line to capture the 1988 Reno Unlimited championship, the round engine fans went wild. His winning speed was 456.821 mph. Rick Brickert was second at 451.202 and Steve Hinton was third at 429.947. John Putman was far behind in fourth at 408.287, Lloyd Hamilton was fifth at 403.632 and John Maloney, who was obviously nursing a sick engine, was sixth at 368.126 . . . flagged after 7 laps, in fact. Scott Sherman, Alan Preston and Don Whittington did not finish.

Gary Levitz and his Bronze category winning Mustang, Miss Ashley.

After the racers landed, Lyle Shelton taxied the **Rare Bear** into victory circle in front of the grandstands to receive the laurels he so richly deserved. First place netted him a prize of $40,437 from the Reno promoters and an additional $10,000 from R.J. Reynolds Tobacco USA, which had set up a $35,000 point fund for participants at Hamilton and Reno. By virtue of winning both races, Lyle was the winner of the first Air Camel Championship. The company plans to expand the Air Camel Warbirds series to three or more races in 1989, with Reno again being the featured event. (There is no word yet on where the additional races will be held.)

Meanwhile, the crowd in the pits had gathered to await Steve Hinton and **Tsunami** to learn the nature of its problem. The

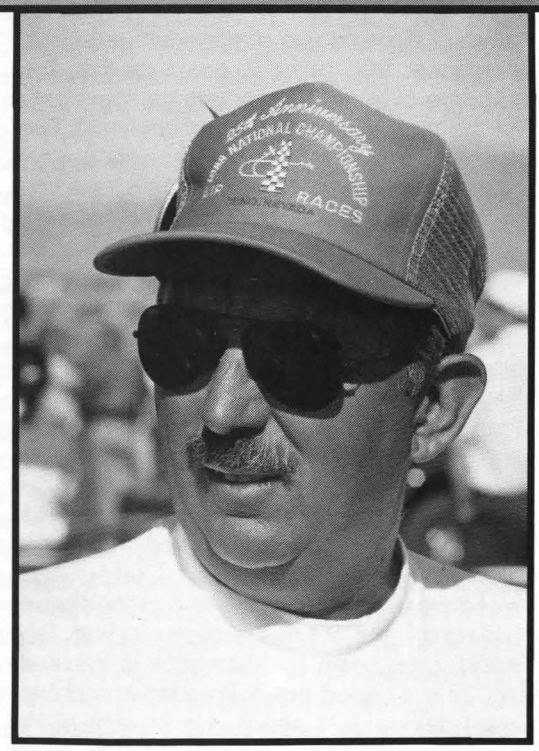
airplane appeared to be in perfect condition, and, in fact, **was** we learned as soon as Steve climbed out of the cockpit. What had happened, he told us, was that when he pushed the throttle up to start the race, the all-important induction temperature gage reached its absolute limit of 100 degrees Centigrade long before the throttle could reach its forward limit. He had to stop the throttle at 80 inches of manifold pressure . . . far from the 100 to 110 inches at which he had expected to run the race. The problem? A regulator in the water injection system, a part that had never before given an instant of trouble, had ceased functioning properly. It was working to some extent . . . we watched as a crew member stuck a measuring stick into the water/alcohol ADI tank and found it about 2/3rds full instead of nearly empty, as it should have been after an 8 lap race . . . but it wasn't enough to cool the induction air sufficiently to allow full power. Had Steve pushed the power up anyway, pistons would have reached their melting point within seconds. He was left with no option but to "cruise" around at 80 inches to the finish.

Needless to say, crew members were sorely disappointed . . . Bruce Boland and Pete Law who had designed the airframe and its systems, in particular. Owner John Sandberg was inconsolable. To have worked so long and hard, to have suffered so much frustration . . . and just when it appeared that all their problems were behind them, to have something like this happen in the championship race was really more than John was able to endure that evening. Still, he had nothing but praise for Steve Hinton. He had dealt with the problem in the only way it could have been dealt with, John told me. It was no situation for misplaced heroics. He saved himself and a priceless one-in-the-world airplane to go for the world's speed record next spring, and to be back racing at Reno next year.

We also stopped by Sanders' pit and while they hate to lose, there was no dissatisfaction with the race they had run. Rick had run **Dreadnought** as fast as he could run it, but it simply had not been enough to catch Lyle Shelton on this particular day. The screens had been checked, and the big Sea Fury was ready to go right out and run another race. What more of it could you ask than that?

When Lyle finally returned to his pit, I had an opportunity to talk to him about his victory. He was fortunate, he said, that he didn't have to run the **Rare Bear** as hard as he might have had **Tsunami** been up to par. We'll just have to wait until next year to find out whether he could have outrun Steve for 8 laps, he said with a grin . . . but he was able to stay ahead of the **Dreadnought** without using his nitrous oxide system. In fact, he admitted, he still had something left in reserve even without the system. Just how much, he wasn't saying, however. He had to keep his competitors guessing a little for next year. He was very generous in his praise of his crew chief, David Cornell, and all the crew members who had taken his venerable ol' racer and made a winner out of it again. He was also grateful to his sponsors who had made it all possible. "We knew what we needed to do to make the airplane competitive again," he said, "but I couldn't afford to make the changes earlier on my (then) co-pilot pocketbook." Perhaps the best measure of the total effect of the aerodynamic clean-up of the airframe was found in Lyle's statement that he was not running the R-3350 as hard during the championship race as he always had to run it prior to the changes. The Bearcat is equipped with a torque meter which, with a BMEP indicator, tells how much horsepower is being produced, so Lyle has a very good handle on the performance he is getting and how much of it is coming from the engine, from the prop and things like the aerodynamic clean-up.

In retrospect, the win posted by Lyle and the **Rare Bear** is a remarkable story. As indicated earlier, the racer entered competition in 1969 and after initial success in the early 1970's and a four year period of inactivity in the late '70s, it was returned to competition in the 1980s as something of an also-ran, operated on a shoestring budget. All that time there lurked within the airframe the potential to be the fastest of the fast at Reno . . . and who knows how much more is left?



Eddie Van Fossen and his 1988 T-6 champion, Miss TNT.

I'm certain it's no consolation to those who experienced misfortune this year at Reno, but no one has labored longer and suffered more frustration than Lyle and his people. I found Lyle to be modest and gracious in victory . . . just as he always has been in defeat. 1988 was his year . . . and the congratulations are long overdue.

* * *

The 1989 Reno National Championship Air Races are set for September 14th through the 17th — and really should be something to see. All the promising new racers introduced this year should be sorted out by that time . . . the radical new Pond Racer may be ready . . . and who knows what else may show up by that time. The rumor in the pits on the final day of this year's races was that Tiger Destefani might install a Griffon in **Strega** for 1989. Stay tuned!

HOWARD DROLLINGER'S

LANCAIR 235

Howard Drollinger of Sunnyside, WA was fresh out of airplanes when he saw the first article on the Lancair 200 in the April 1985 issue of **Sport Aviation**. He had recently sold his Cardinal RG and for the first time since soloing a 65 hp Luscombe in the CPT Program in 1942, he had nothing to fly. He was instantly attracted to the Lancair because somehow it reminded him of the P-39s he had flown during World War II . . . and two months later he had plunked down a 10% deposit on a kit and was already counting the days until it arrived. He was promised delivery "around Christmas time" and, sure enough, the crates arrived on December 27th. He quickly got his work area organized and began construction on the first day of 1986.

Howard began the project with absolutely no experience with composite materials and their fabrication. Consequently, progress was slow at first, with layups seeming to take forever. As he gained experience, however, and especially as he gained confidence, the pace quickened . . . in fact, he was soon seeing easier ways to do things and was frequently on the phone to Lance Neibauer at Neico Aviation to get an O.K. on his plans deviations. He was not changing the airplane, just some of the procedures and sequences of building, so he usually got a thumbs up to proceed. As one of the earliest builders and one of the fastest, he was the first to come across the inevitable few errors in measurements and detail omissions that almost all new plans and building instructions seem to suffer. His reporting of these minor glitches to Neico Aviation helped subsequent builders who received corrected drawings . . . and made Howard feel that he was returning the favors of his own EAA Chapter 206 members who were helping him so much. One of his sequential changes was to wait until the wings were on the fuselage (which is done with the fuselage upside down) to install the rudder and vertical fin. Howard is short and says he didn't want to have to stand on a stepladder to work on the wing installation. He left off the vertical fin until the last and had no problem installing it. Another thing Howard is proud of is the fact that his wing jigs are benefitting other builders. He loaned them to a friend, who has promised them to another Lancair builder . . . and who knows how many will eventually use them!

"That's the best part of building an airplane," Howard says, "meeting the other people who are building and you have a lot in common with to talk to . . . always very nice people. Seems homebuilders are a close knit group, really a nice bunch of people."

Generally, he found the Lancair kit went together very easily and quickly and especially in the initial stages, it was a great morale booster to see a lot of progress at the end of each work session. He could have easily finished his airplane a year earlier than he did had he not taken nearly 8 months off that first year for vacations (yes, he is retired), plus the fact that he made a middle of the stream engine change, switching from the 100 hp Continental O-200 to the 115 hp Lycoming O-235-C1 that was becoming the obvious engine of choice of both Neico and most of its builders.

One of Howard's most valuable helpers was his 83 year old uncle, Jake Drollinger. Jake was a General Dynamics retiree and, according to an admiring Howard, still very good with his mind and hands. He built almost all the small metal parts for the airplane, including a carburetor intake tube Neico liked so much it was later adopted as a part of the kit.

The bare, basic airplane was completed and test flown for the first time on November 3, 1987. Everything went well and after the usual adjustments and refinements, Howard pronounced the airframe ready for fancy upholstery and paint jobs. An experienced car upholsterer from nearby Grandview, WA put in the beautiful interior, and Bob Campbell, one of the earliest of EAAers and an experienced builder, did the paint job. He made Howard do the sanding and other preparation, then did the spraying himself.

The Lycoming is fitted with a Great American 62" x 70" wood propeller. It statics about 2300 and is a good smooth running prop, but Howard says he intends to trim just a bit off the trailing edges of the tips in an effort to get his static rpm up to 2400. He is satisfied with his cruise — about 170 indicated at 2600 rpm at 8,000 feet — but feels his takeoff is a little on the slow side.

The instrument panel is stocked with all the goodies necessary for IFR flying, if desired, with a vacuum pump to drive the gyros. A back-up electric turn and bank is

Ginny and Howard Drollinger

also fitted. The engine instruments came from Electronics International in Hillsboro, OR and include digital EGT, CHT for all four cylinders, etc. Carb temp, outside air temp and a manifold pressure gage are some of the other instruments, the latter in spite of the fact that a fixed prop is used. Howard normally sees about 20 inches at 7,000 feet.

Howard says his Lancair gets off at about 70 indicated and after he gets the gear up, climbs at 1,000 fpm at 120. If he is on a trip, he leaves the throttle all the way in until he is ready to descend for landing. At altitude the manifold pressure is down to where he needs full throttle anyway, so the operation of the airplane is a lot like the new Porsche powered airplanes . . . just push in the throttle and go! Particularly gratifying to Howard is the Lancair's ride and handling in wind and turbulence. To illustrate, he told of his trip from Sunnyside to Merced, CA where I interviewed him for this article:

"The pilot reports through central Oregon were for severe turbulence, and Medford FSS was quite surprised when I said I was going on anyway. I didn't think the turbulence was so bad, but a front was going through and we had 50 mph headwinds at 8,000 feet. When we landed at Red Bluff, the wind was blowing at a reported 25 knots and quartering the runway. A commuter airline pilot who had just landed called to tell me to watch it because that was as bad a turbulence as he'd seen on that runway for a long time. We came in and it was pretty turbulent, but the airplane handled it nicely. I landed without flaps but it didn't take long to stop with a 25 knot wind. Actually, I had landed in 30 knot winds in Washington, so I knew what the airplane could do. It handles things like that — it's not an airplane you have to baby. You can do a lot of things with this airplane. It's a great cross country airplane. I carry 36 gallons of fuel, 12 in each wing and 12 in the fuselage, so at 6 gallons or so per hour at 170 mph, you can really go places. A transfer pump is used to draw fuel from the wing tanks to the fuselage tank which feeds the engine. I transfer fuel quite frequently because you can feel a wing getting heavy after just a short time on the opposite wing tank. My wife, Ginny, keeps track of how much fuel we use and which tanks we have drawn from."

Howard had a rather inauspicious start to his aviation career. He took the aviation cadet exam right out of high school but was not accepted for flight training. He wanted to fly, however, so he got into the CPT program at Hawkins Flight Academy in his hometown of Spokane, WA. After getting his Private license, he was supposed to go to military glider training at Albuquerque, but got orders to report to Santa Ana, CA instead . . . and ended up being given the cadet test again and accepted for Air Force flight school. He flew the trainers in the usual order — the Stearman, BT-13 . . . and AT-6 at Luke Field in Arizona. On the fast track to fighters all the way, he was switched to P-40s about halfway through advanced training . . . and after graduating from flight school was transferred to Tonopah, NV where he began flying P-39s. Unlike a lot of pilots, he loved the P-39.

"You could get down so close to the ground with that thing and with its 37 mm cannon firing through the prop hub, plus the two 50 calibers, you could really throw the lead at targets."

Howard flew the P-39 at Tonopah, Hayward, CA and Pocatello, ID before being transferred to Europe to join the 8th Air Force. He had expected to fly the P-39 in combat, but much to his surprise he found his new 362nd Squadron of the 357th Fighter Group set for transition to the hot new P-51.

"We started transitioning to the P-51 the first of January 1944. We were at Leiston Air Base, just north of Ipswich, England — right on the coast. We were the closest air base to Berlin that was still in England, just about 3 miles from the coast. I made three trips to Berlin in four days one time in the first part of March and I was with the first group of bombers that flew over Berlin in a daylight raid. We were fighter protection for them. I took along the Stars and Stripes, which was a little magazine we read in those days . . . and over Berlin I opened my canopy a little bit and dumped it out — and said, 'Well, the Stars and Stripes are flying over Berlin!'

"On my 13th mission, we were escorting some bombers over France, and there was a little bit of flack — not much, but we hit a little bit and I started losing coolant. I don't know if it was from the flack or not, but I started losing coolant. I was flying on the Colonel's wing at that time, so the element leader got on my wing and we started back — and his wing man took my place on the Colonel's wing. We started back and it wasn't very long before my engine quit. We were at 27,000 or 28,000 feet at the time and when I got down to 20,000, I rolled it upside down, released my safety belt and popped out like a cork. I fell free until I was about 2,000 feet and then I pulled my ripcord. I almost landed in a haystack. This was before D-Day, so I was in German occupied territory and had to try to avoid capture. There were two French women who saw me land and they pointed to a nearby barn. I ran over to it and hid . . . and about that time a German came by on a motorcycle, but he didn't see me and went on down the road. To make a long story short, I got involved in the French black market, selling meat, cheese and eggs in Paris until I could make connections with the underground. The underground took me down to the Spanish border and about 35 of us began walking across the Pyrenees Mountains to freedom . . . of sorts. Unfortunately, however, we ran into a German patrol and all but 6 of us were shot as we tried to get away. Finally, the rest of us made it into Spain and were taken into an internment rest camp. Chuck Yeager, who was in the same Fighter Group but a different Squadron as me, had been shot down about three weeks earlier than I had and we were in the same rest camp together. We knew each other — not well, but we knew who each other was. We came back to England and had our physicals at Supreme Headquarters at the same time. He elected to fly combat again and I elected to come back to the states. I ran into him a time or two over the years since. One time I was in charge of getting a speaker for our Washington Pilots Association convention and I called him to see if he could come. He said, 'Sure, I'd be glad to.' He later had to call and cancel, however, but sent along two other people in his place who put on one of the best programs we ever had. They told us about what was the beginning of the space program — something no one had even heard about at the time."

After being sent back to the U.S., Howard became an instructor in the 3rd Air Force's training command program at Sarasota, FL. Oddly enough, he flew a P-40 as the lead plane in flights of P-51s, the pilots of which he was teaching combat tactics. There simply weren't enough Mustangs to go around, so the instructors flew the obsolete equipment. After a year of this . . . and the end of the war in Europe, Howard was itching for action again, so he requested duty in the Pacific. His baggage was already on the ship that was to take him to Okinawa where he would escort B-29s when the first atomic bomb was dropped and the war ended. He was given his choice of continuing overseas

or remaining in the states, so he stayed in the U.S.

After about six months, Howard was discharged and returned to Spokane to enter college at Gonzaga University. He remained in the National Guard, however, during his college years and was flying the F-84 when the Korean War began. His unit was called to active duty and re-equipped with the F-86, but in a strange twist for Howard, was sent to England instead of the Far East. His fighter group was the first to fly the Atlantic en masse . . . in August of 1951. While in Europe, Howard attempted to locate the French citizens who had hid him from the Germans, but was not successful. Finally, after 31 months of active duty, he was sent back home and released to the reserves — in which he continued to serve until he had 20 years and was eligible for retirement.

In 1947, while Howard was still in college, his father had started a ready mix concrete business in Sunnyside, WA. When he came

home from his Korean War era service in the early 1950s, his father offered him and his two brothers partnerships in the business — and all accepted. Howard retired in 1980, but continued to build ready mix plants on occasion until just recently. He says he is through with all that now and intends to play with airplanes from now on.

After getting into business, he bought a Cessna 182 that he flew and enjoyed for many years. He followed it up with the aforementioned Cardinal RG . . . and, finally, the Lancair. I asked what his next project would be and he emphatically stated there **would** be one . . . he just had not decided what it would be. A friend, he said, was trying to get him to restore a Classic of some kind, but he admitted to being something of a convert to the sleek composite designs. Just as we were finishing our tape, the new brilliantly red Lancair 320 came taxiing by . . . and by the sparkle in his eyes, it was easy to see which way he was leaning!

NORVAL FERGUSON'S

VAGABOND

FOLLOWING THE SUN ON 2 OR 3 GALLONS PER HOUR

The United States is currently in the midst of a phenomenon never before experienced by any civilization that has held sway over a chunk of planet Earth. I'm talking about retirement. Never before has a nation had such a large percentage of its population reach retirement age . . . with such good health . . . and with the resources to continue living active, fulfilling lives. Previously a privilege of the wealthy few, Americans of even modest means now look forward to shucking off the workaday world and, likely as not, hitting the road to adventure. As always, government doesn't quite know how to deal with this situation . . . so, as befits the citizens of a free society, the retirees are coming up with all sorts of creative ways to enjoy their golden years. Nowhere is this more evident than in the American West where the wide open spaces and the warm winter weather of southern California, Arizona and New Mexico make possible a kind of migratory life style. Motor homes, trailers and pickup-mounted campers have made possible a sub culture of modern day gypsies, free to go where and when they please in summer and free to return to the desert in winter. No more heart attack inducing snow shovelling, no more broken hips from falling on slippery stoops and sidewalks . . . and far fewer winter colds with their threat of developing into deadly pneumonia. Many now congregate in "slab cities" where there are no parking fees. These are long abandoned World War II military bases where only the concrete slabs of buildings remain. Some have become so resourceful . . . fishing the salmon streams of the Northwest and freezing their catch in summer, and learning which growers will give them citrus fruit too ripe for shipping in winter, for instance . . . that living costs are cut to incredibly low levels — leaving more money for the fun things in life.

Clever people that they are, it naturally follows that pilot/aircraft owners are among those who have come up with unique and adventuresome ways to enjoy retirement. Norval Ferguson, who calls Roseburg, OR home but is rarely there, is a good example . . . and this is his story.

Last March while covering the annual Cactus Fly-In at Casa Grande, AZ, I happened upon a little Piper Vagabond that caused me to do a double take. At first glance, it appeared to be just a plain, ordinary yellow-with-no-stripe Vagabond . . . just the way Mr. Piper made 'em back in 1948. A flash of bare metal on the landing gear leg nearest my vantage point made me look more closely, however, and the more I looked, the more I saw. Not only were the landing gear legs faired with aluminum, so were the intersections of the gear legs and the fuselage, the gear legs and the axle/brake intersection, both ends of the wing struts . . . and what's this? A Wittman Tailwind type tapered rod tailwheel spring? Close examination of the mods revealed them to be very simple and very well constructed . . . obviously, this was something that had to be investigated. The next time I walked by the Vagabond, a fellow was rummaging around in the cockpit, so, introducing myself, I had the pleasure of making the acquaintance of Norval Ferguson.

Pleased that I had noticed the work he had done on his airplane, he quickly made me aware that what I could readily see was just the beginning. In short order, I found that just as much effort had been expended under the cowl. This Vag, I learned, was a 1948 PA-15, the early single control model with the rigid landing gear . . . and powered with the Lycoming O-145 that allegedly cranked about 65 hp.

"The 65 Lyc, as you probably know, is a pretty primative engine," Norval began. "It's a cast iron engine, the cylinder heads bolt on and if you don't have good cooling, you will quickly separate valve seats . . . and cylinder head studs. I learned that a long time ago, and, ultimately, I learned how to get along with this engine. The first thing you have to do is put a head temp gage on there and then you work the baffling over . . . very carefully. You may have noticed that I have put an adjustable cowl flap on it (I hadn't — it was closed, and tucked away under the cowl, not obvious at all) so that I can open it up in the climb to keep the head temps down. Otherwise, I'd be cooking cylinder heads. They don't have a lot of fins because I believe they were designed to run out in the open air in Cubs and other early lightplanes with exposed cylinders. The engine worked pretty well with the cylinders out in the breeze, but not so good in planes like the Vagabond with full cowls. I also changed the propeller — it's a little higher pitched than normal, so that adds to the economy. Doesn't do anything for the take-off and climb, it's kinda like overdrive in a car. Then, I put a mixture control on the carburetor, a little MA-2. I'd never seen one with the mixture control, but it is possible to install one, so I did so. It increases my range quite a bit. The rest of it is just a general aerodynamic clean-up. The PA-15 was pretty rough . . . it was designed by Piper just to use up some material they had on hand, just to get something in the air, so there was no care taken in making it streamlined. The little fairings I put on have added a little bit to the top speed, a little to the cruise speed, but primarily they've made it so that at normal cruise, the range is increased immensely . . . and that is really why I did it."

Casting a quizzical eye toward his little Vagabond, Norval kept remembering things he had done to it . . . in no particular order or relationship. "You know there is no electrical system on this airplane, so with the aid of a little solar panel and a trick I've learned that enables me to bleed a tiny trickle of electricity from the ignition . . . without adversely affecting it in any way . . . I can keep my hand held radio battery completely peaked up and I can talk all day on it to flying partners, controllers at ARSAs, towers and things like that. I can also use the charging capability to keep the batteries up on rechargeables when I'm just sitting at the airfield. Even if it's a cloudy day, you can get a little bit out of the solar panel.

"I've been very careful in trying to keep the weight down. This one comes in at about 650 pounds, and that includes a 9½ gallon wing tank. It's a Stoddard tank which Wag-Aero builds today, I believe. It's just gravity feed to the main tank located in front of the instrument panel. I've got an on/off valve so I can drain the wing tank into the main whenever I want to. It's a pretty fool proof system.

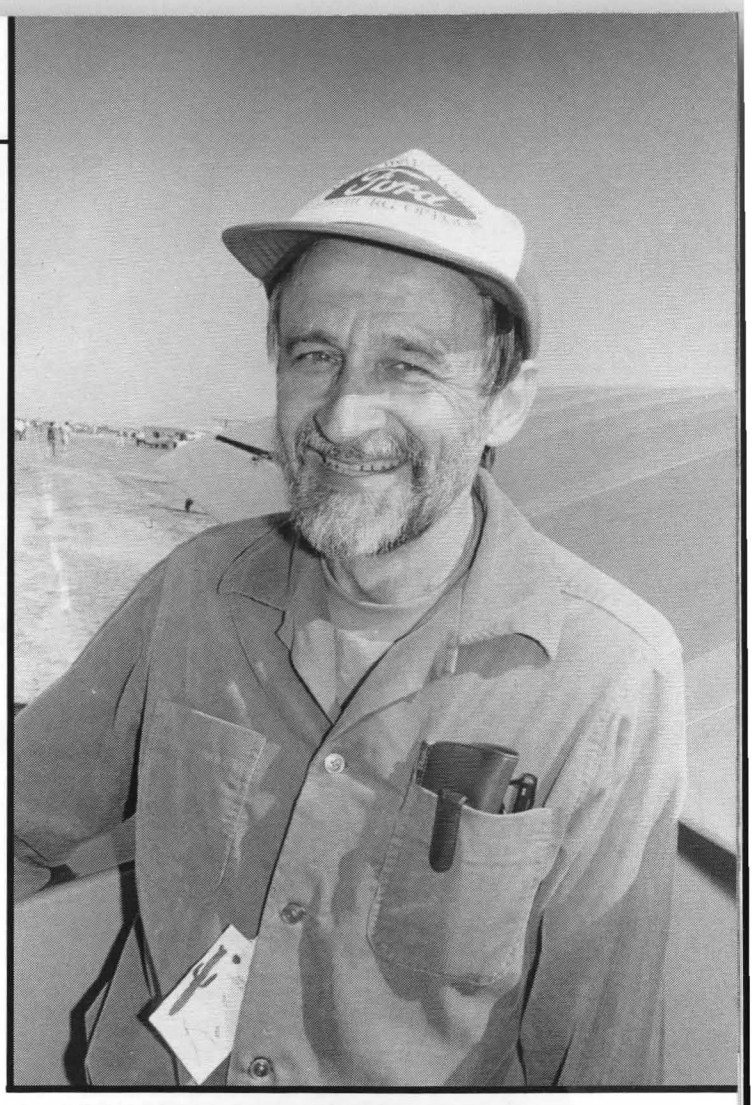
"You might be interested in the parking brake system. It's a very lightweight innovation that works quite well on the hydraulic brakes. It's simply a little bit of chain and a toggle that catches the toes of both brake pedals and you just step on the pedals, pull on the cord to toggle the chain into the notch and it holds both brake pedals down. Quite effective . . . and it weighs about 2 ounces. Maybe not even that.

"The engine has a shielded ignition so I can operate my radio. I use two Slick magnetos because they are the lightest ones I could find. The instruments I consider essential for safe operation of this old Lycoming are a cylinder head temperature gage and a manifold pressure gage. You need to know how much manifold pressure you are pulling so you can really lean it out at low altitudes. If you come back to a reasonable manifold pressure, you can run it at full lean mixture at low altitude. When I cruise 7,500 feet, I'm down to about 23 inches and about 2250 rpm. That's probably 40 horsepower. The Lycoming O-145 was rated at 65 hp but it probably never developed more than about 60. Without a really flat prop you're not turning it enough to develop 65 hp. My normal cruising rpm for range is about 1950 and 21 or 22 inches at lower elevations, and about 2100 at 21 inches at higher altitudes. Full throttle and fully leaned. Normally, on long cruise, I'll average about 2.25 gph at about 80-85 mph. Piper claimed 90 mph as a cruise. I don't think they ever got more than 80-85 in a normal cruise. Maybe if you had the climp prop on and went to 7,000 feet and ran it wide open, you might get 90 mph out of it. With my clean-up of the airframe, I can cruise at an honest 100 . . . and that's burning just 3 gph. My metal prop is about 69 inches long and has a 42 inch pitch. It came from a Piper J-5 and I salvaged it from the bottom of a lake in British Columbia where it had lain for 5½ years. Top end speed is not what all this is about, though. What I wanted was range."

By this time my curiosity was getting the better of me . . . there must be some reason for all this talk of range . . . where does Norval fly this thing that causes him to want a lot of range? Vagabonds are not cross country airplanes . . . they are (or were) trainers and twice-around-the-patch fun machines . . . aren't they? Well, so much for conventional wisdom. When I posed the question to Norval, he set me solidly back on my heels by matter-of-factly replying: "I've gone to Alaska in this thing 6 times . . . I've flown it out over the ice at Point Barrow, Prudhoe Bay, made a complete circle around Alaska except for the Aleutian Islands. I've had a lot of fun in the summer time in Alaska with the Parks Department, hopping around to the various parks like Lake Clark, Denali and Glacier Bay, mainly. It's an airplane that will go a long way if you take a little care of it. You have to be patient, but you can make long legs and a long way between fuel stops."

Chagrined for having underestimated both Norval and his Vagabond, I asked about the longest leg he had flown in the airplane.

"Probably the longest is between White Horse and Fort St. James. That's about 620-630 miles and I've made that flight quite a number of times, back and forth through there. I've flown non-stop from Gustavus in Glacier Bay National Park up the coast to Anchorage . . . and I've flown non-stop from Roseburg, OR, my home base, to Boulder City, NV, which is just below Las Vegas. I can make Casa Grande, AZ from Roseburg with only one fuel stop. This Vagabond is inexpensive flying. I've been two weeks on this trip, in Oregon, California and Arizona and so far I haven't burned one pint of avgas . . . it's all been on car gas. That's what really

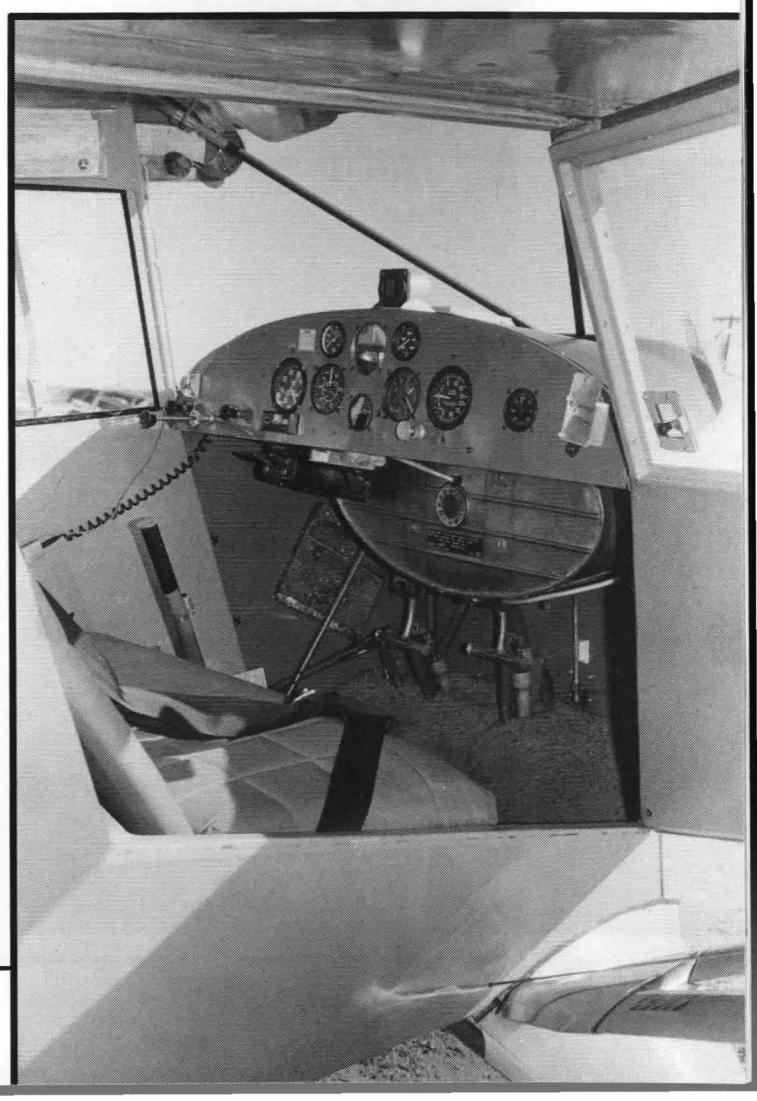


Norval Ferguson

makes flying cheap."

Norval went on to tell me about the special conditions he has had to deal with in Alaska.

"I've got a plastic tape seal on the door. It helps a little with the noise on these little airplanes with no insulation, although I wear a headset or ear plugs most of the time now. The other reason I need it is for the mosquitos in Alaska. I've made an arrangement so the airplane is a camper . . . I don't know whether Piper had that in mind when they



designed it or not, but the seat back support tube comes out and I've made the seat so it pulls into the baggage area and with the aid of an air mattress and a cardboard box in the front, you can stretch out and sleep right in the airplane. Sometimes when you land in Alaska, especially if it's raining, the mosquitos will swarm under the wing and try to get in and eat you. I carry a piece of mosquito bar that I put up over the windows so I can open them . . . then I just make up the bed and camp out there without them ever getting to me. It's pretty nice up there in Alaska in the summertime in some places, but the mosquitos are pretty fierce in other places."

At this point I decided it was time to learn more about the human side of this adventuresome soul, so I asked Norval to give me a brief rundown on his life and times, with, of course, an emphasis on his aviation activity.

"I happen to be a native of Roseburg, OR . . . and, in fact, I live in the house that I was born in. That's a little unusual these days. Of course, like most of us older people who still fly, I've been interested in aviation since I can recall. The Vagabond wasn't really my first choice of airplanes . . . until I learned to love it. I think that is probably the case with most people and their airplanes. When they learn the airplane, they like it a lot better than one they just looked at.

"All kids built model airplanes when I was young, and I was no exception. I went into the U.S. Navy Air Service when I was 18 . . . I was an air crew member, an Aviation Machinist Mate, on PBYs, then B-24s and the PB4Y2, which was a single tail version of the B-24. I got out of the service in 1946 with the desire to be an aviation mechanic on light aircraft. I used my GI Bill to attend Cal Aero Tech at the old Grand Central Airport in Glendale, CA and got my A&E license. Although I wanted to work on light aircraft, there didn't seem to be many jobs available, so I went to work for TransOcean Airlines in Oakland, CA. I started learning to fly on the GI Bill at that time, thinking that I needed a pilot's license to work on light aircraft. After getting my Private, however, I still couldn't find a job like I wanted. I soon realized that if you want to make any money working on airplanes, you had to work for an airline and you had to live in a big city. I didn't care to do that, so I started mechanicing on heavy equipment, dirt moving equipment, logging equipment, log tractors and trailers, and finally I gradually moved into automotive mechanicing. I did that for about 15 years and then I taught auto mechanics at a community college for a couple of years. Eventually, I kinda phased out of auto mechanicing and began working in fishing and hunting lodges in British Columbia . . . just worked as I needed to so it wouldn't interfere with my flying. I've been retired for the last 10 years or so.

"Over the years, I've flown a lot of different airplanes. I have just a Private license for single engine land and sea, but that takes in a lot of airplanes. I've flown a lot of experimentals. A good friend of mine owns a Midget Mustang and I fly it quite a bit. I've owned just two airplanes, both Vagabonds. I bought the first one in 1958 and flew it for 10 years. It was also Lycoming powered and that's where I learned about the O-145 engine. If I hadn't got in a snow storm and had to land on a rock bar in British Columbia, I'd still have that Vagabond. It succumbed to high water in the river, however; I found just one piece of it downstream. I bought this Vagabond in April of 1980."

Asked how he began his trips to Alaska, Norval said:

"I started by going up to British Columbia for a friend of mine who was in the aircraft salvage business. He wanted me to look at a Twin Beech that had crashed on an airstrip up there. I flew up in my old Vagabond, inspected it and told him it was an impossible job to rebuild it. Naturally, a couple of months later we were up there putting a new tail cone on it, new propellers, new gear legs . . . and we flew it out in about two weeks! From then on I flew into British Columbia quite regularly, and then got interested in flying to Alaska. My son worked in Fairbanks for quite awhile, so I'd fly up to visit him then tour around the rest of the country. I found many friends in Alaska . . . the little villages especially have very friendly people and I really enjoy seeing the back country which you cannot see if you drive. You won't get the feel of the place, either, if you fly airlines. If you fly there yourself, you find that it is an entirely different experience.

"I got to going out to Lake Clark Park which is a very low key new park service operated out of an old log cabin. Seemed to be just my style, so I'd go there and work as a volunteer and they'd feed me . . . sometimes give me a little gasoline to fly my airplane around. Gasoline costs $2.00, $3.00, $4.00 a gallon up there, $6.00 in some places, or maybe you couldn't buy anything except a 55 gallon drum full. You can't put 55 gallons in tanks that hold just 22 gallons, so it is pretty important to be able to get small quantities of fuel up there. The park personnel always seem to be glad to see me come back. I fix their outboard motors, 3-wheelers and things like that. It's been a lot of fun going up there and I plan to go up again in summer." (By the time you are reading this in November, Norval should have made his 7th flight to Alaska and returned.)

"I made my first trip in 1967 in my first Vagabond. I didn't have a wing tank in that airplane, so I lashed up an outboard motor tank so I could pump fuel from it into the main tank. I had 18 gallons total and that would get me quite a ways. It had a mixture control like my present airplane.

"I got started going up there, then flew other people's airplanes up . . . and my present Vagabond has been to Alaska 6 times in the last 8 years. I've put between 1,200 and 1,300 hours on this airplane. The engine that is in it now came out of another Vagabond and it was somewhere else before it got in that airplane because it has a really low serial number. I dropped it in here because it had had a recent overhaul. I've put about 400 hours on this engine and it's running quite well. The one I replaced had about 2,000 hours on it and needed an overhaul. It was still running quite well but was using a little oil. I thought I needed a little newer engine in the airplane for the kind of flying I do.

"The reason I like a Vagabond is that it lands so slowly that you can put it in almost anywhere. I feel confident that you can walk away from most any forced landing in a Vagabond. Without shock absorbers, however, you need a fairly smooth field. You can't land out in just any cow pasture . . . I've done that but I didn't like it at all.

"One thing I'd like to mention is that the Communication Specialist TR-720 portable radio I have just works excellently. I have it hooked to an outside antenna and the receiver on it is simply unparalleled; probably excels most radios in light aircraft. It's just loud and clear all the time. Also, you might be interested to know that my son, Ken, also owns a Vagabond. He learned to fly in a Vagabond, in a P-15 that had been converted to a PA-17 with dual controls and a Continental engine. He owned a PA-12 with 150 hp for a while when he lived in Alaska, but sold it when he moved back to Roseburg."

I asked Norval if he got down to Arizona often . . .

"You bet I do — just to get out of the fog in Oregon. It's pretty dismal in western Oregon this time of the year (early March) and I come down here to get away from it."

Following the sun on 2 or 3 gallons per hour, eh?

"That's pretty much what I do these days."

JIM CARRUTHERS'

SUPERCAT

When the ultralight phenomenon burst upon the aviation scene in the late 1970s, those who tried to accentuate its positive aspects emphasized the sport's potential as a more affordable entry level for flying . . . from which many would progress on to the more sophisticated levels of aviation. Today, critics deride such a notion, claiming that ultralight pilots have either remained in the activity or have dropped out of flying altogether. Few, they say, have gone on to earn a Private license and to flying "real" airplanes. While I have no way of putting a meaningful number on the "few" who have progressed to licenses, I can say with certainty that here in the late 1980s, I am coming across more and more pilots who did, in fact, get their start in ultralights.

A case in point: 47 year old Jim Carruthers of Pickerington, Ohio.

A native of Columbus, Jim has been an aviation enthusiast for as long as he can remember. As he grew up, he progressed through the various levels of model airplane building and eventually built and flew control line and RC models. As a modeler and an auto body man skilled in the use of tools, he was more than ready for the simple progression to ultralights when they appeared on the scene. In 1983, he built one of Bob Hovey's little Whing Dings, which, he found, with an empty weight of just 136 pounds and powered by a 12 hp McCulloch 101, was, at best, just a taxi toy with the capability of limited flight. The Whing Ding was a taildragger, so it did serve the useful purpose of teaching him to steer with the little wheel in the rear . . . and to take off and land.

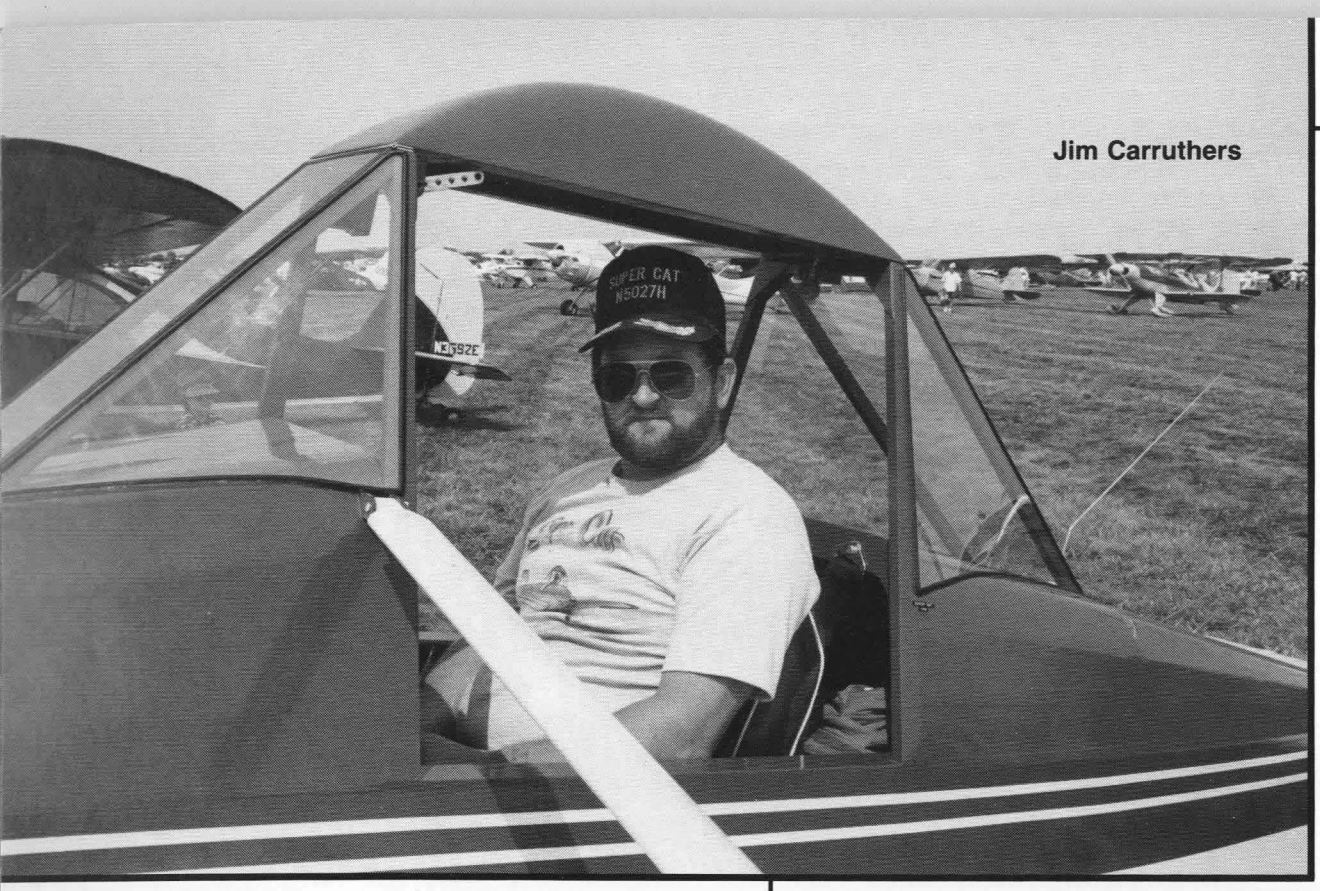
Seeking more performance, Jim sold the Whing Ding and purchased an Eipper MX. He completed his self-instruction in that machine and proceeded to fly it over 300 hours. In 1984 he decided to get his Private license, so he began instruction at Port Columbus in a Cessna 150. After earning his ticket, he went on to check out in a 172 and both the Piper Warrior and Archer. A friend owned an Aeronca Champion, so he added the mastering of that little taildragger to his growing list of a aviation accomplishments. Today, he has about 250 hours in the Champ and still flies it on occasion.

In 1985, Jim became attracted to Bobby Baker's Supercat homebuilt and decided he wanted to build one. He ordered the plans and the fiberglass parts (cowling, fuel tank and the top of the cockpit), but built the rest of the airframe from scratch. The Supercat is a beefier version of Bobby Baker's earlier Bobcat. Both are of all wood construction, with a little foam and fiberglass here and there, with metal fittings and components like the landing gear and, finally, fabric covering. The construction is pure model airplane, scaled up to man carrying size. This is not surprising when you learn Baker was a very successful model airplane designer before moving on to ultralights and homebuilts.

The Supercat's fuselage reminds me of the old Joe Ott "victory" models I used to build during World War II . . . notched ring bulkheads with a zillion stringers tying them all together and creating the outer shape of the thing. It's a labor intensive method, but the work is easy to perform and, best of all, you can see a lot of progress after every hour you spend on it. The Supercat's low wing is braced by struts on the top rather than the bottom . . . which means they are in compression rather than tension. Engineers have a lot of reasons why this is not the best way to brace a wing, but a number of successful airplanes have been built this way . . . the Kinner Sport, Arrow Sport, Callair, Piper Pawnee and Stits Playboy, just to name a few. Without belaboring the obvious, the Supercat bears a strong resemblance to an agplane, so the Pawnee might be considered its closest **conceptual** relative.

The plans call for the fuselage to be built in two halves, the top and bottom, which are then glued together. Jim built the bottom half first, turned it over and built the top half onto it. Some of the notches in the bulkheads were improperly aligned, so they had to be recut to allow the stringers to run straight.

The Supercat's wing is designed around a rigid D-section. The main spar has a foam core with wood caps extending along the top and bottom and is faced with plywood out to the spar attach brackets. Jim beefed his spar up a bit by using thicker spar cap material. The D-section was built first, after which the ribs, diagonal bracing members and little blocks for mounting the aileron hinges were added in one evening. The assembly of these parts was done with the wing standing upright on its nose. Jim added 3 ribs in his wings in order to have the same spacing in the wing and each aileron. The plans called for ribs 24 inches apart in the wing and 12 inches apart in the ailerons. He spaced all his 16 inches apart.



Jim Carruthers

Throughout the building process, Jim used several types of glue, each appropriate to the given job. The basic load bearing structure was bonded with epoxy.

After completion of the airframe's structure, it was covered with Ceconite (the 7600 process). Two coats of filler were followed by a light coat of color, most of which was wet sanded off. The final color coat was DuPont Centauri acrylic enamel, with the 793 catalyst used to provide the flexibility needed for use on fabric.

Several of the aircraft's systems deserve note. The fiberglass fuel tank Jim purchased was supposed to hold 8 gallons, but actually held 7, he found, so he carries 2 gallons of fuel and a small bottle of oil behind the seat when he makes a cross country flight. This is in case he encounters headwinds and has to stop somewhere where 2-cycle oil is not available to mix in the gasoline . . . something that has to be considered with a very light, low penetration airplane such as this. He also carries a set of tiedowns in the Supercat at all times . . . again, a factor of great significence when your airplane weighs just 357 pounds.

Jim's Supercat is powered with a 2 cylinder, inline, aircooled, 40 horsepower 447 Rotax with the company's gear reduction unit and a hand yanked recoil starter. It has a primer for cold starts, but so far has been very easy to fire off hot or cold. The only problem to date has been with cooling the rear cylinder. A piston was burned at about 40 hours, but modifications to the shroud around the rear cylinder has brought the head temp down to within 50 degrees of the front cylinder. Both cylinders have temperature probes, an absolute necessity with a 2-cycle engine, Jim says. The front cylinder runs at 300 degrees and the rear one at 350.

The wooden 68" x 30" prop was built by Craig Catto. It allows the engine to turn up to 6300 rpm during a static check . . . which is a little outside the experience most of us have had in airplanes. Since the engine is geared and the airplane is much lighter than the machines to which most of us are accustomed, I asked Jim to talk us around the pattern to acquaint us with the numbers he sees when he flies.

"Take-off is about normal for any taildragger. You firewall it and go. In cruise, the airplane doesn't like to fly below 55 at all. 55

just doesn't feel good. 60 feels good, however, and that takes about 5200 rpm on the tach. You can indicate 70 at 6000 rpm burning about 3 gallons per hour, and at 6500 rpm, which is wide open, you can get 85 mph out of it.

"Most of the builders who have a problem flying this airplane don't land them correctly. They cut the power and try to glide in . . . and they end up dropping it in too hard, often damaging the landing gear. The original landing gear was made of .065 wall tubing, but Baker later had to go to .095 because everybody was bending them. The problem is that this airplane won't float. You've got to fly it on with power. I carry between 3500 and 4000 rpm and 60 mph right to the end of the runway, then I ease off the power, hold it off at about 55 and it will will 3-point all by itself.

"As far as the stall is concerned, I really can't get it to do one at anything like a normal angle of attack. It just mushes. If I pull the nose up to a really steep angle, it will finally break at about 36 mph. Release back pressure and it's flying again.

"The rudder is pretty touchy and for awhile I was sort of afraid to land it on pavement. Once I got used to it, however, I found that, in fact it handles nicely on hard surface, even in crosswinds. I've landed it in a 20 mph direct crosswind with no problems . . . but it was fairly smooth. As light as the airplane is, if it is turbulent, it bounces around a lot."

Jim flies his Supercat out of his backyard. If the weather is good, he leaves it tied out, but if storms are forecast, he removes the wings, which takes about 15 minutes, and stores it in his garage. Completed and flown for the first time in March of this year, he had already flown it about 75 hours by the time we met him at the Marion, OH MERFI Fly-In in early September. The workmanship is absolutely first class . . . in part, a reflection of the fact that Jim has a very well equipped shop at home. He has a vertical mill, a 6 inch and a 10 inch metal lathe, a MIG and a TIG welder and, of course, all the usual small tools. As noted in the beginning, he made all his metal parts, including a spring shock absorbing system for his landing gear.

In the 75 hours he had flown the airplane, he had encountered a couple of wear and tear items that needed attention. The attach fittings for the struts containing his spring/shock system had to be modified to eliminate torsional loads . . . and a reinforcing aluminum plate was attached to the bulkhead upon which the tailwheel spring is attached. He also found that stiffer compression springs provided better ground steering than the tension only springs originally used between the tailwheel fork and the rudder horns. The elevator, on the other hand, was oversensitive when first flown. This condition was corrected by changing the geometry of the actuation system . . . just going to a different hole in the bellcrank.

Perhaps the best points of this project are that Jim has a grand total of about $4,000 invested . . . the fun he had building it . . . the raves and trophies he gets when he displays it at fly-ins . . . and the fun he has flying it. He offers advice to fellow Supercat builders . . . and prospective Supercat builders. Contact Jim Carruthers, 161 Marie Ave., Pickerington, OH 43147, phone 614/837-8437.

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Required by 39 U.S.C. 3685)

1A. TITLE OF PUBLICATION	1B. PUBLICATION NO.	2. DATE OF FILING
SPORTSMAN PILOT	5 9 5 2 5 0 0 0	9/28/88
3. FREQUENCY OF ISSUE	**3A. NO. OF ISSUES PUBLISHED ANNUALLY**	**3B. ANNUAL SUBSCRIPTION PRICE**
QUARTERLY	4	$7.50

4. COMPLETE MAILING ADDRESS OF KNOWN OFFICE OF PUBLICATION *(Street, City, County, State and ZIP+4 Code) (Not printer)*
1220 Huron Ct., Oshkosh, Winnebago, WI 54901

5. COMPLETE MAILING ADDRESS OF THE HEADQUARTERS OF GENERAL BUSINESS OFFICES OF THE PUBLISHER *(Not printer)*
P. O. Box 2768, Oshkosh, Winnebago, WI 54901

6. FULL NAMES AND COMPLETE MAILING ADDRESS OF PUBLISHER, EDITOR, AND MANAGING EDITOR *(This item MUST NOT be blank)*

PUBLISHER *(Name and Complete Mailing Address)*
Justin B. Cox, 1220 Huron Ct., Oshkosh, WI 54901

EDITOR *(Name and Complete Mailing Address)*
Same as Publisher

MANAGING EDITOR *(Name and Complete Mailing Address)*
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